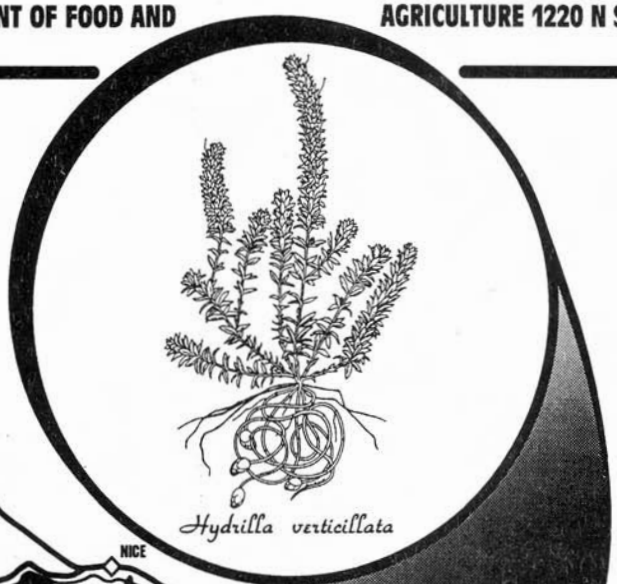
CALIFORNIA PLANT PEST & DISEASE REPORT

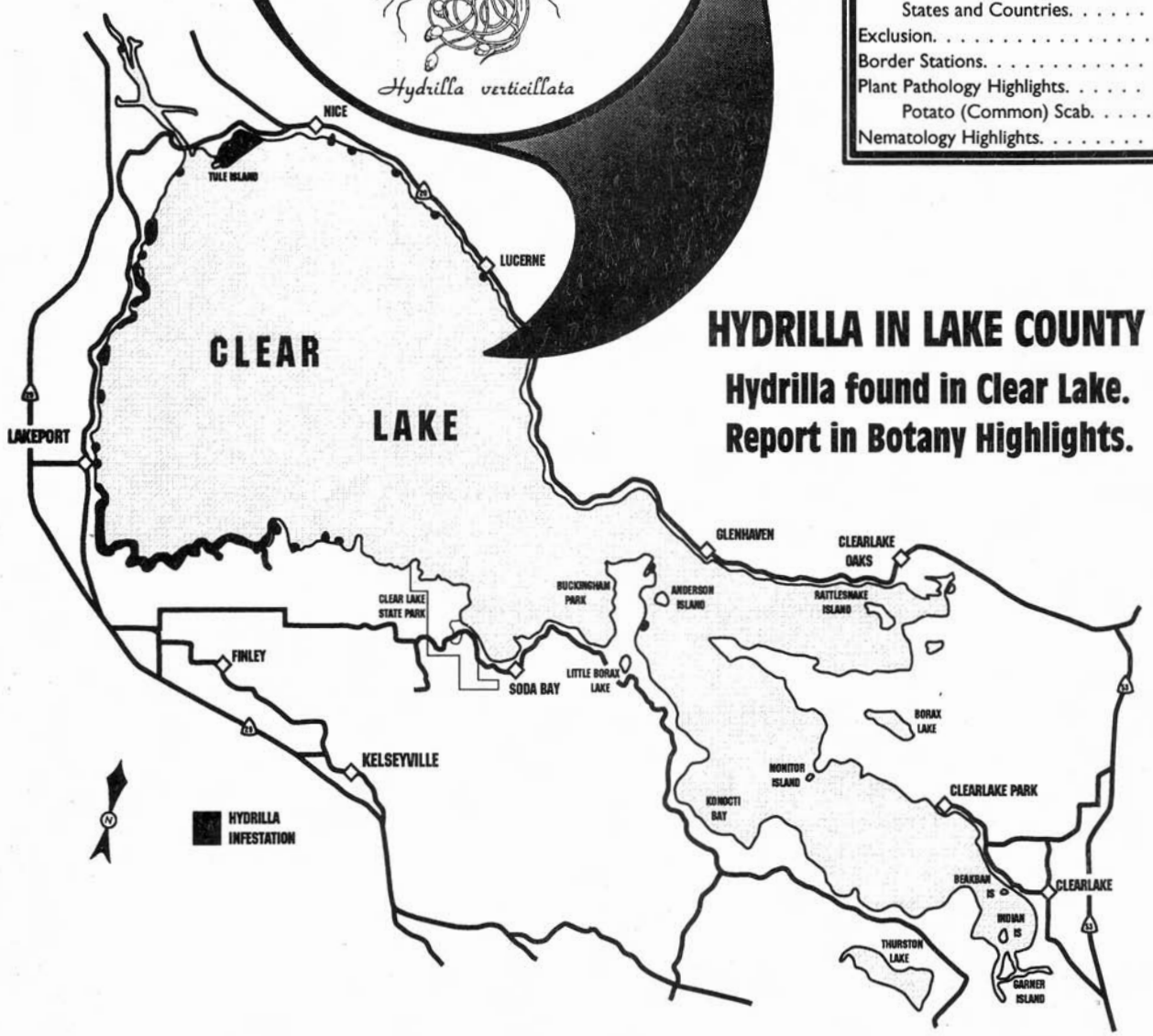
CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE 1220 N STREET, SACRAMENTO, CALIFORNIA, 95814



What's Inside:
Vol. 13 Numbers 3-4
July-September, 1994

HYDRILLA IN LAKE COUNTY

Hydrilla found in Clear Lake. Report in Botany Highlights.



CALIFORNIA PLANT PEST AND DISEASE REPORT

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~ BOTANY HIGHLIGHTS ~

HYDRILLA, *Hydrilla verticillata*, -(A)- Hydrilla has been found for the first time in **Lake** County. The following report was prepared by Ross O'Connell:

> On August 1, 1994, Weed and Vertebrate Associate Biologist Robin Breckenridge and Lake County Inspector Chris Twohy found hydrilla in Clear Lake. Initially, the infestation appeared to be relatively confined to the southwest shore of the Upper Lake area, near Lakeport. Subsequent surveys found plants scattered along the south, west, and northern shores of Upper Lake. Small infestations were also located in two small marinas near Kono Tayee and one location near Buckingham Park in the Lower Arm of the Lake.
>
> The first chemical treatment of the infestations was make the week of August 16th, using Komeen, a copper active aquatic herbicide. Two more treatments were made in early and late September, and a fourth treatment is scheduled in early November.
>
> Currently, approximately 300 acres are being treated to eradicate this pest plant. The lake itself is over 43,000 surface acres which makes survey arduous and time consuming. Another problem with Clear Lake is that the lake is not clear, but has poor visibility due to algae and other aquatic weeds. Also, the hydrilla found in Clear Lake is the monoecious biotype, rather than the dioecious biotype that is found in the other California locations. Monoecious hydrilla is more tolerant of colder water and can produce many more turions (axial buds) than the dioecious biotype.

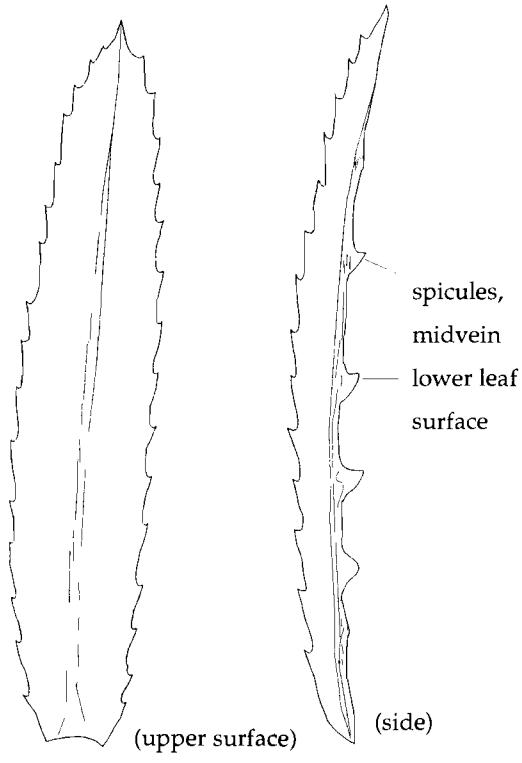
Additional information was prepared by Nate Dechoretz:

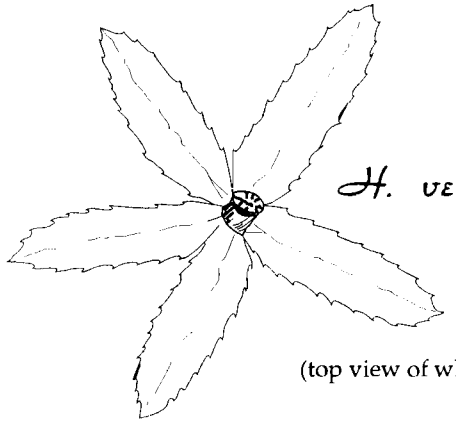
> State and county biologists have been surveying this lake on a regular basis since 1976. Field conditions indicate this is a young infestation, probably less than two years old.
>
> Water in Clear Lake empties into Cache Creek which flows through Lake and Yolo counties and provides irrigation water to the Yolo County Flood Control and Water Conservation District. During periods of high water flows, Cache Creek water enters the Yolo Bypass and eventually the Sacramento River.

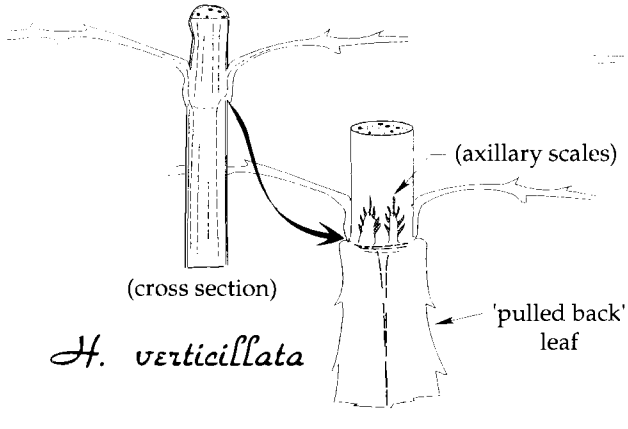
Treatments continue to be applied for hydrilla in Shasta, Madera, Mariposa, Imperial, Yuba, and Calaveras counties. Even though treatments continue in these counties, the current infestations are dramatically reduced fom initial levels.

The cover map illustrates the extent of the current infestation in Clear Lake. Morphological characteristics of hydrilla and another aquatic weed, elodea, are presented on the next page. On page 38 is the updated California distribution map for hydrilla.

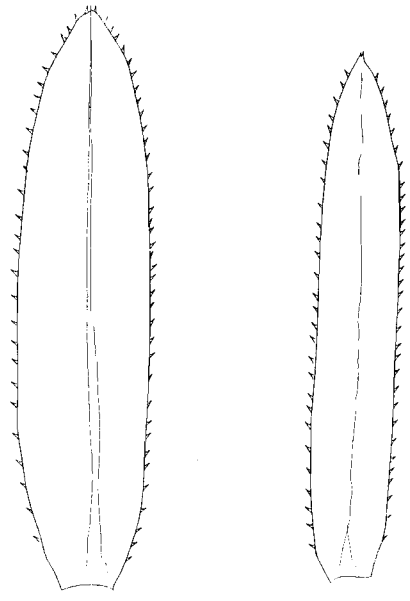
HYDRILLA

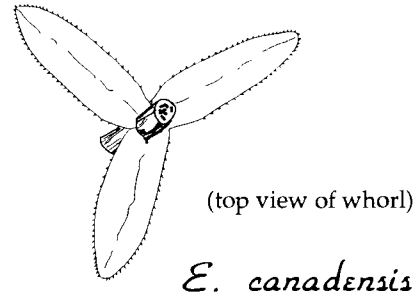


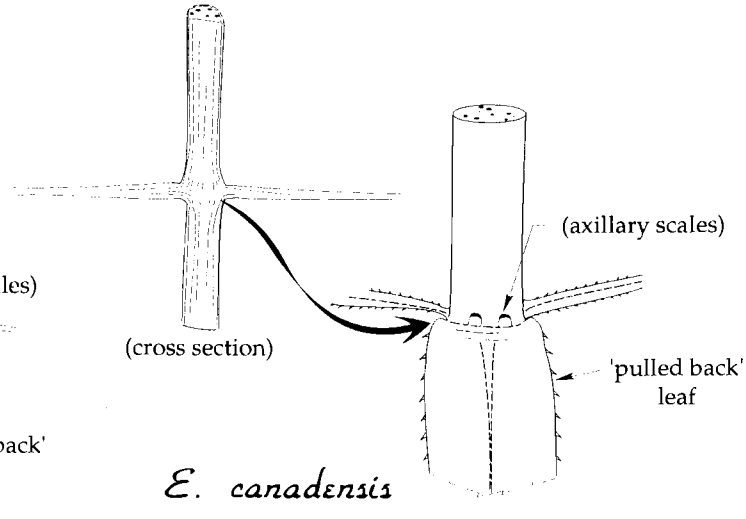




ELODEA







NEW COUNTY RECORD

JOINTED GOATGRASS, *Aegilops cylindrica*, -(B)- A significant find of jointed goatgrass has been made in **San Bernardino** County. This new county record is an unusual location for this weed typically found in the colder, drier counties of northern California. The nearest previous records are from Santa Barbara County. The current map for jointed goatgrass is located on page 39.

Our State Botanist, Doug Barbe, has been busy and provided us with 15 other updated distribution maps located on pages 40-54.

STATE OF CALIFORNIA • DEPARTMENT OF FOOD AND AGRICULTURE

DIVISION OF PLANT INDUSTRY - ANALYSIS & IDENTIFICATION/BOTANY

DETECTION MANUAL
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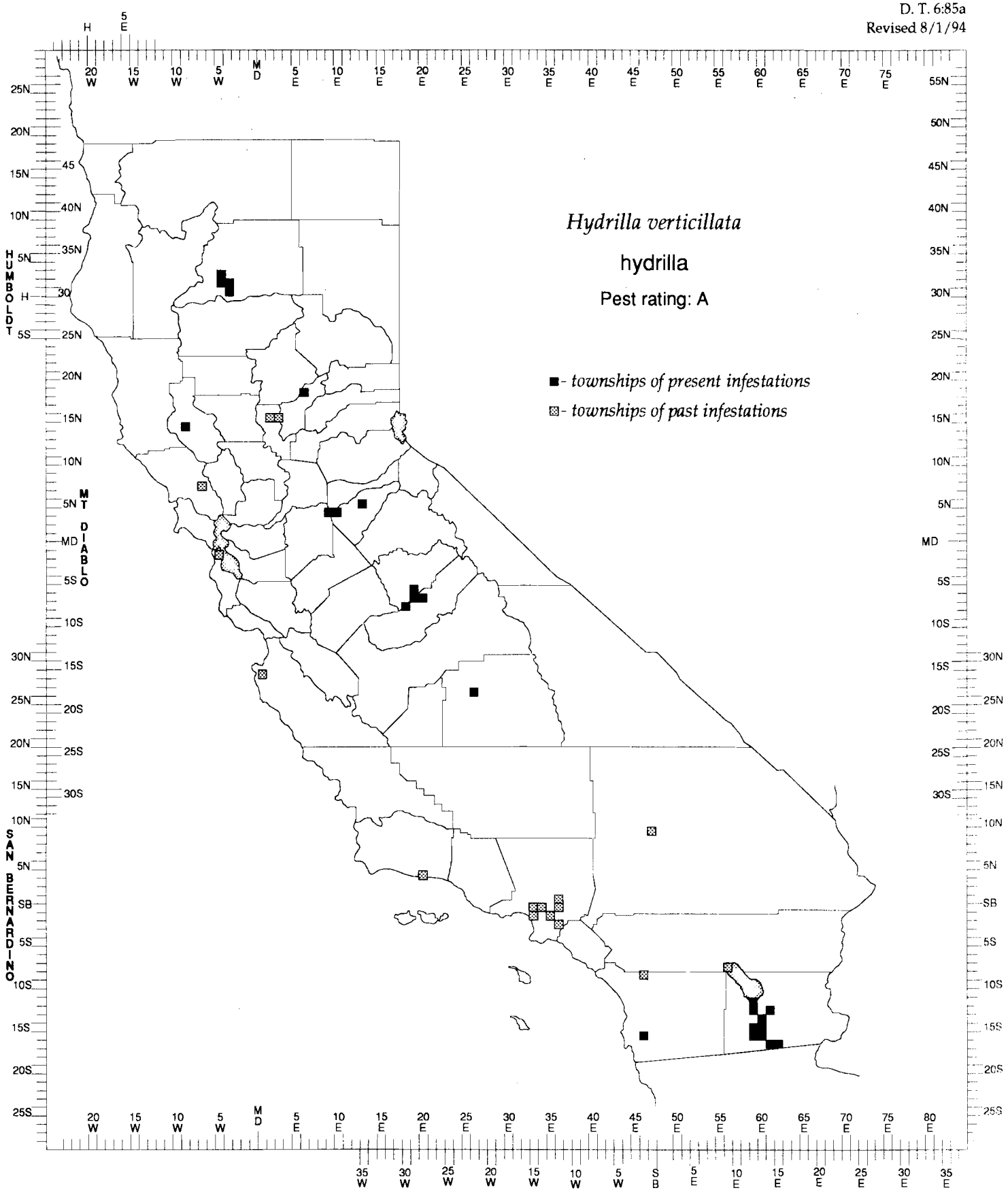

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39

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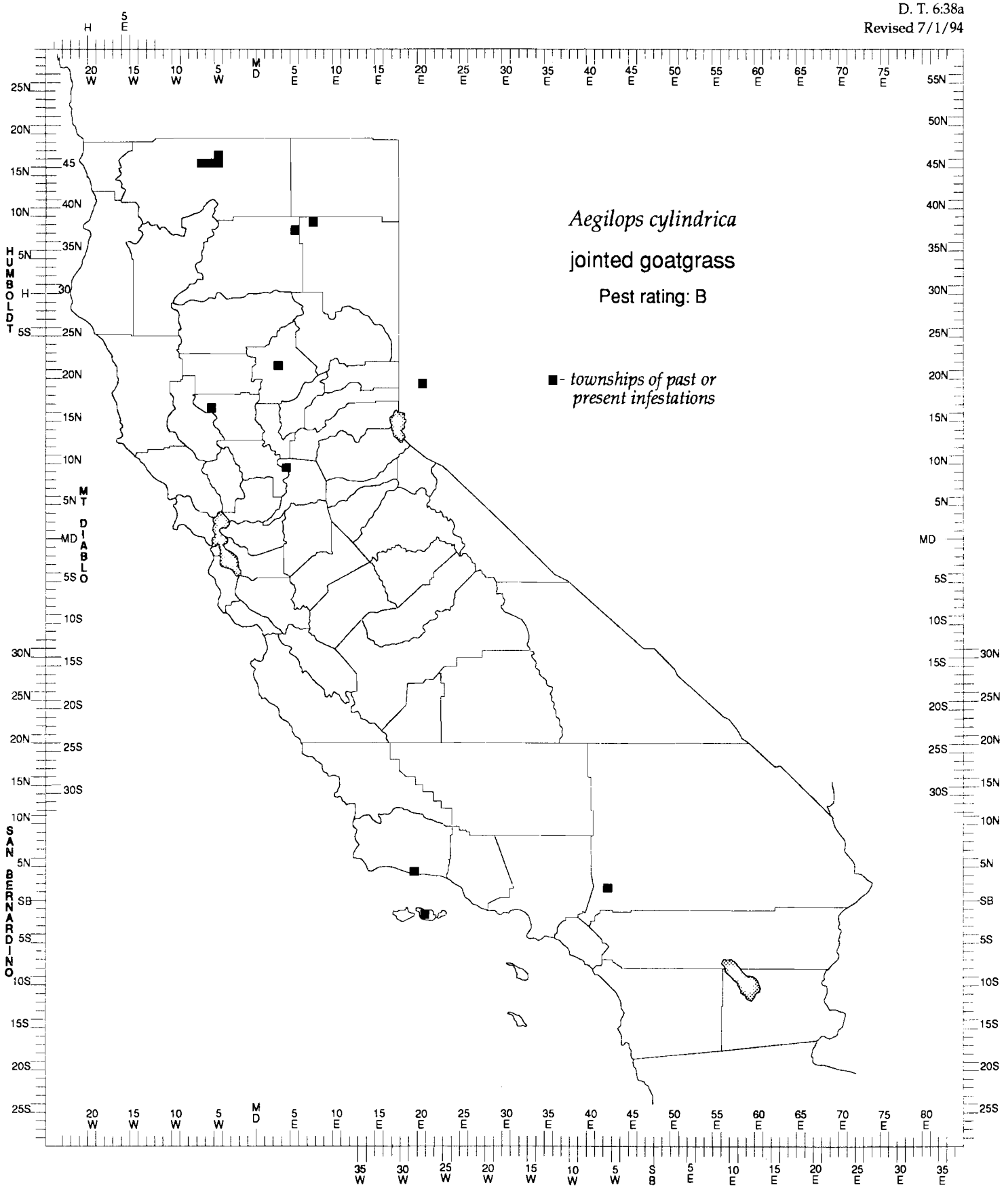

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40

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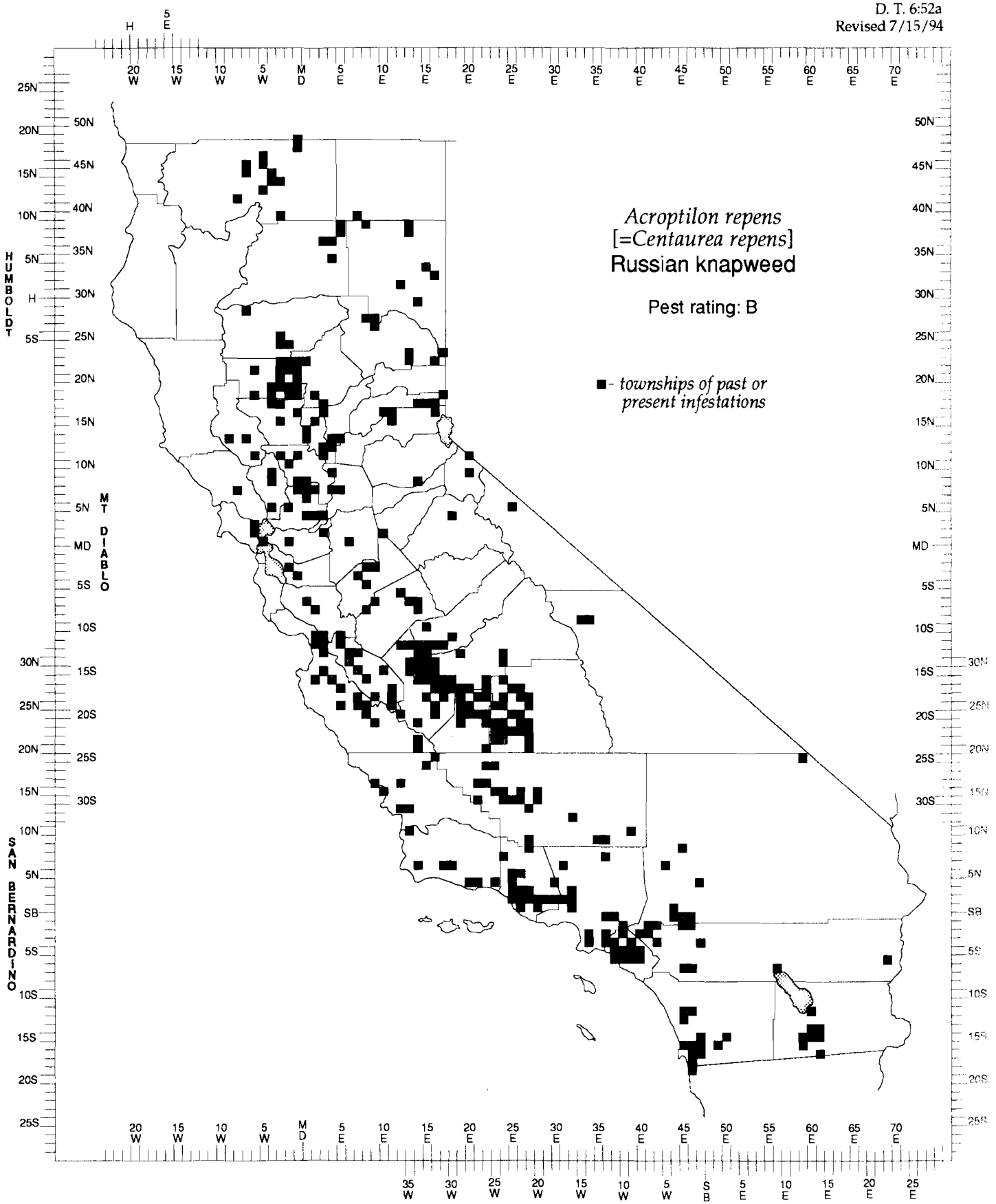

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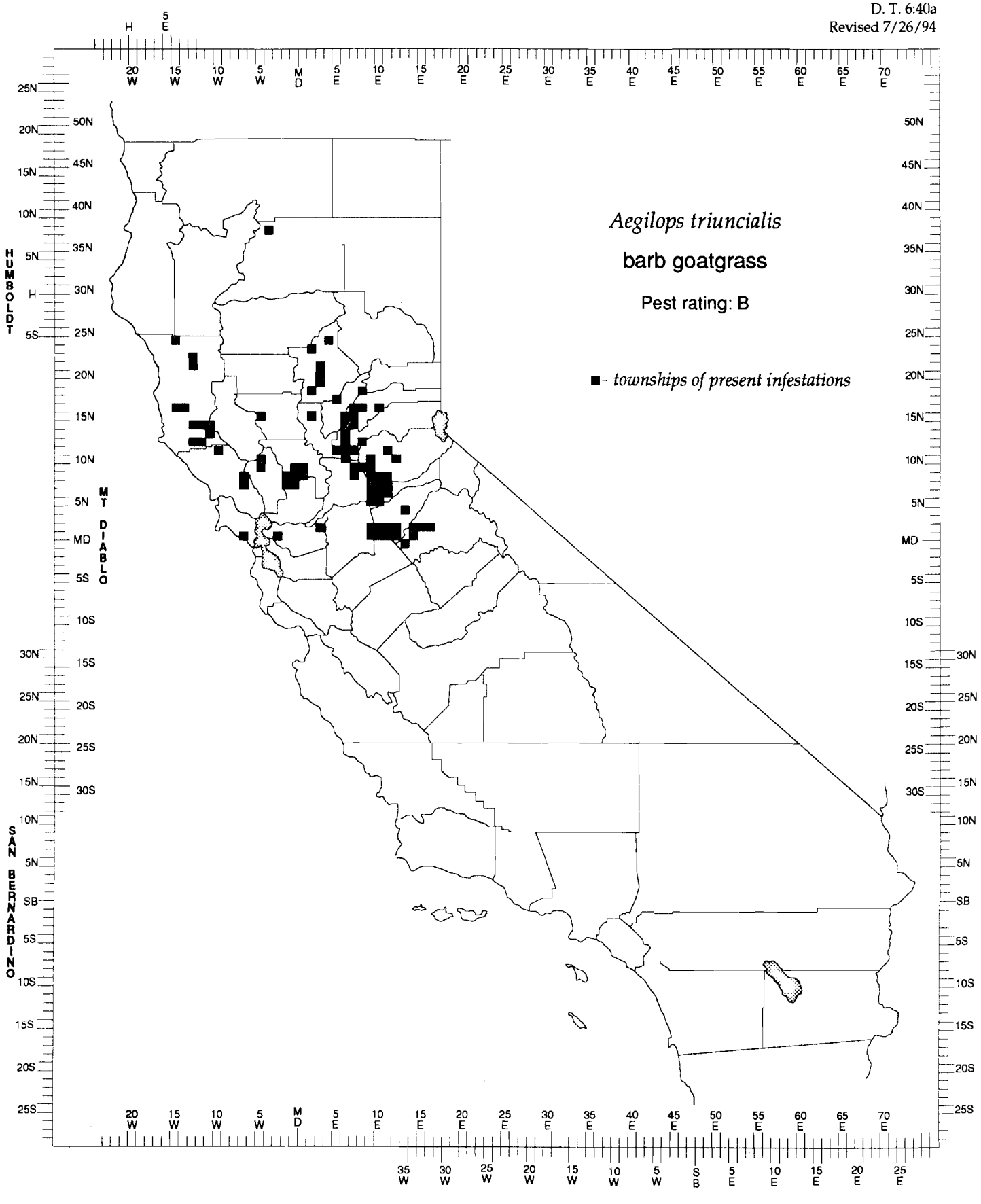

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42

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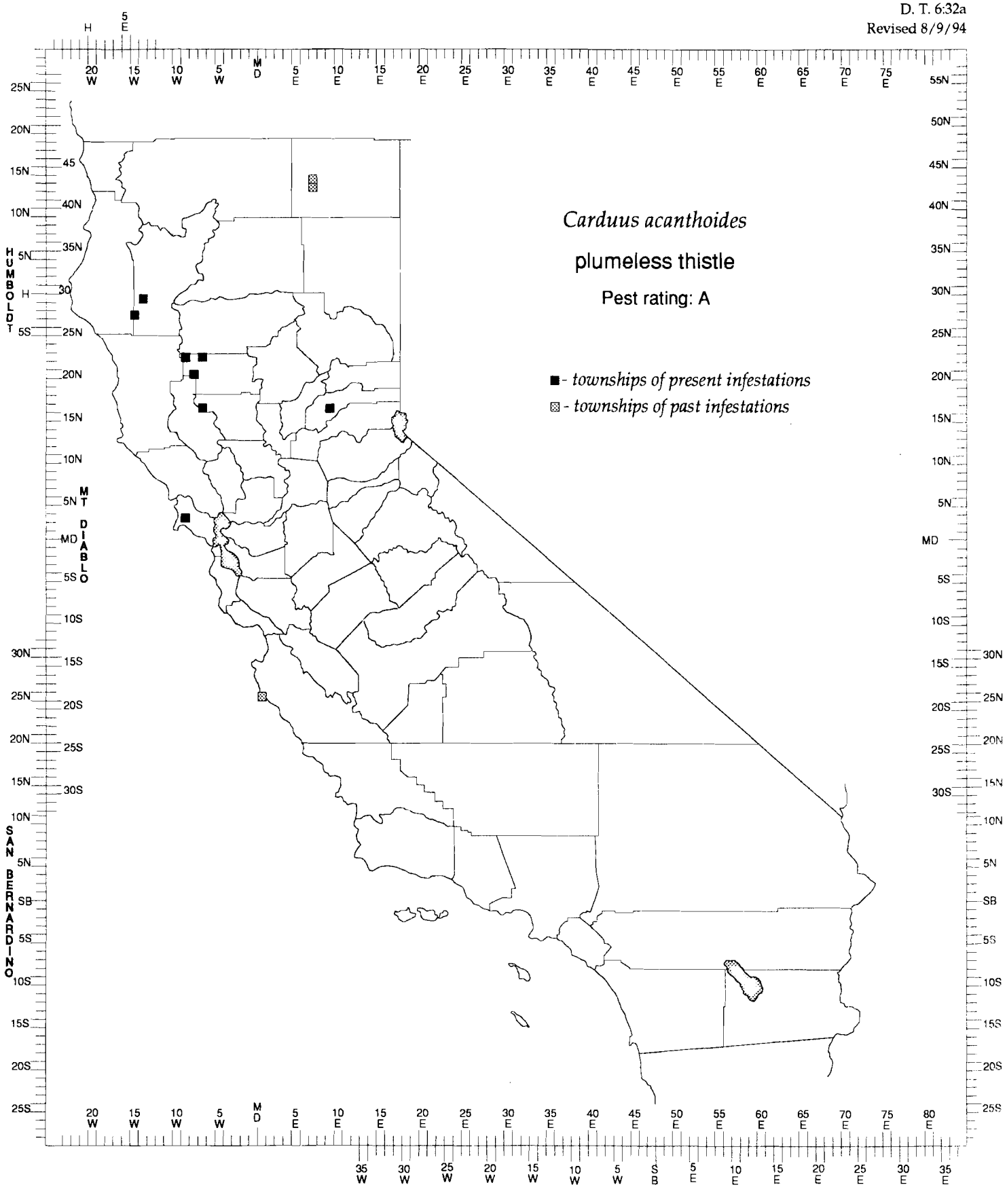

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DIVISION OF PLANT INDUSTRY - ANALYSIS & IDENTIFICATION/BOTANY

43

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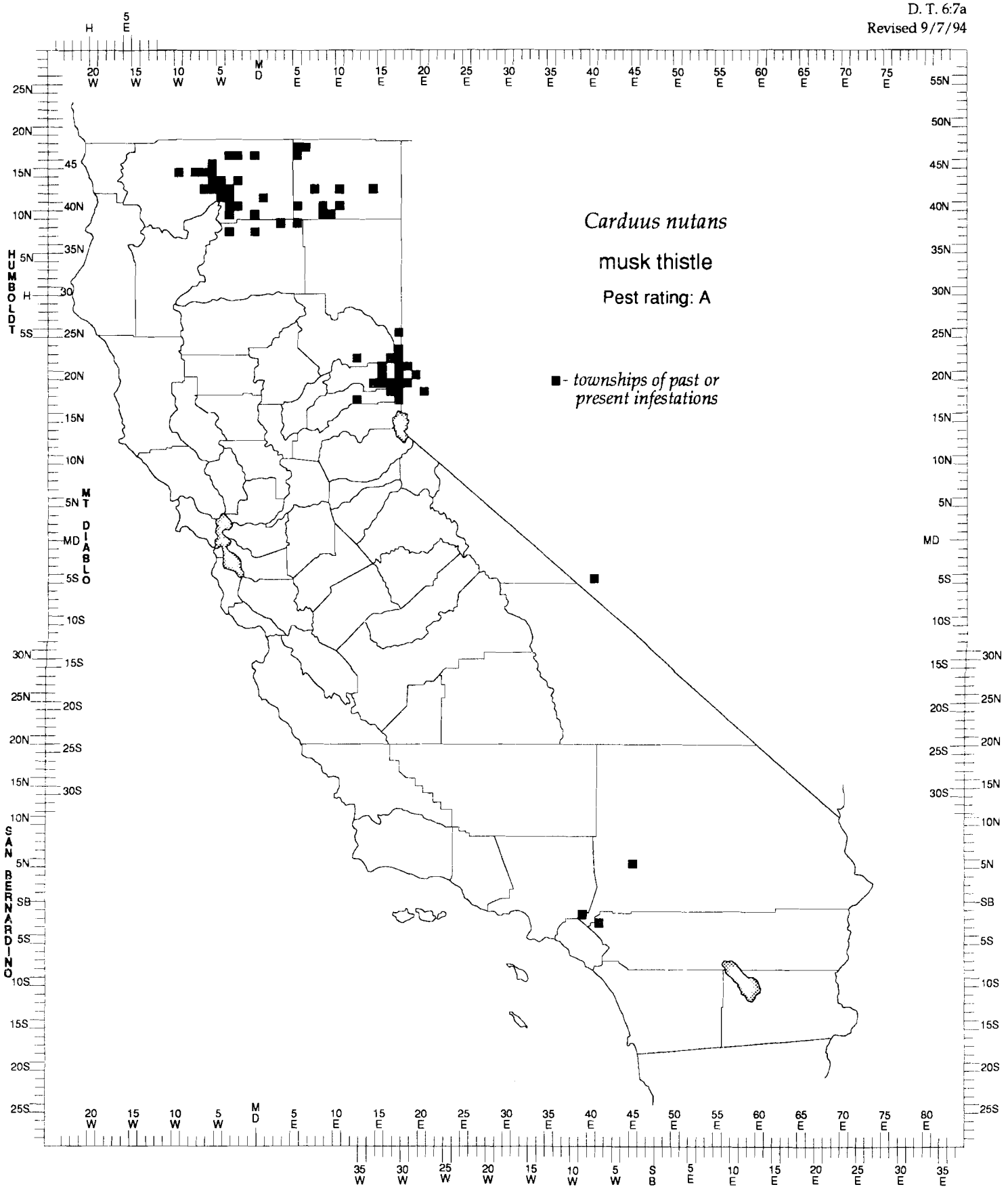

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44

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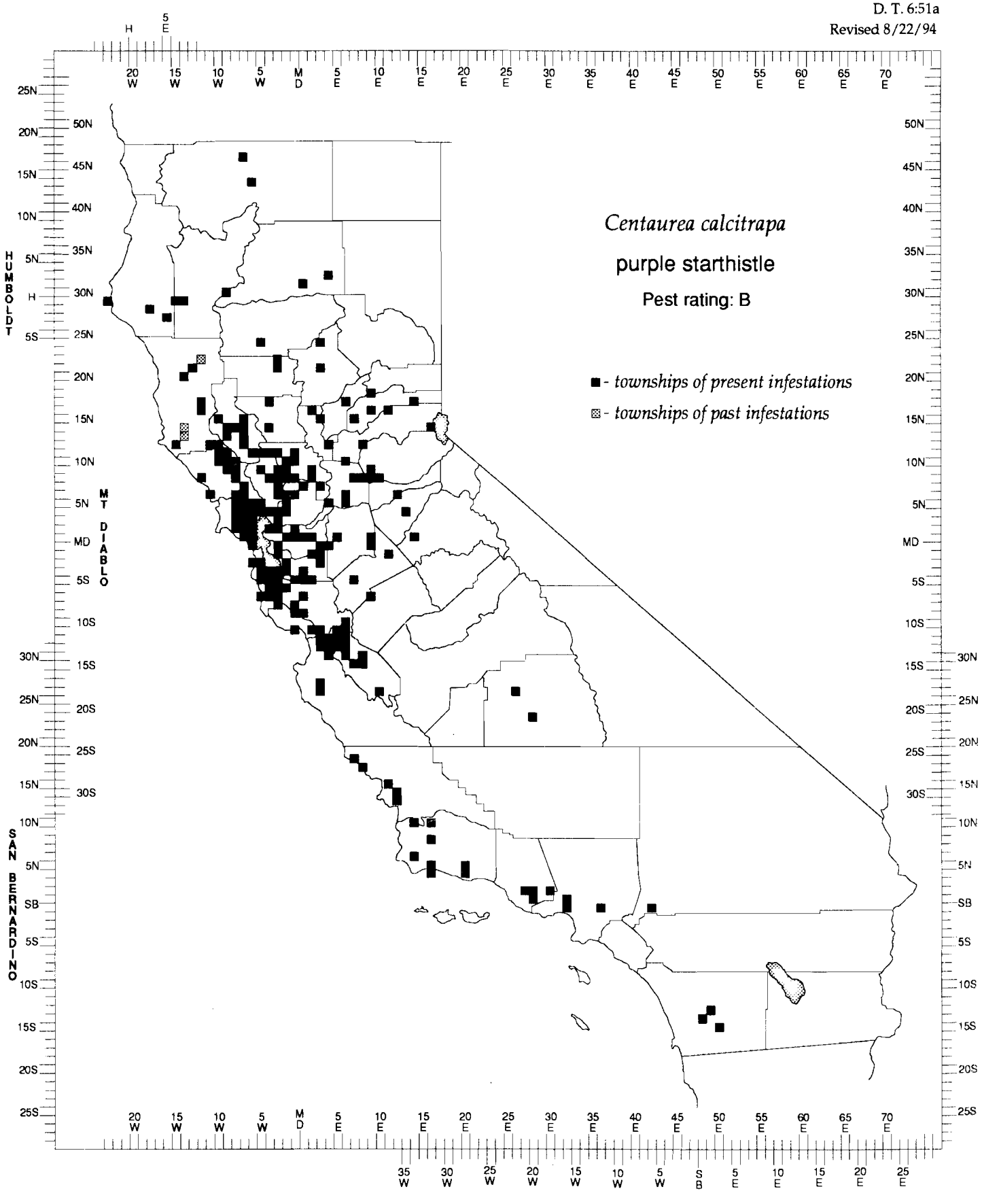

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DIVISION OF PLANT INDUSTRY - ANALYSIS & IDENTIFICATION/BOTANY

45

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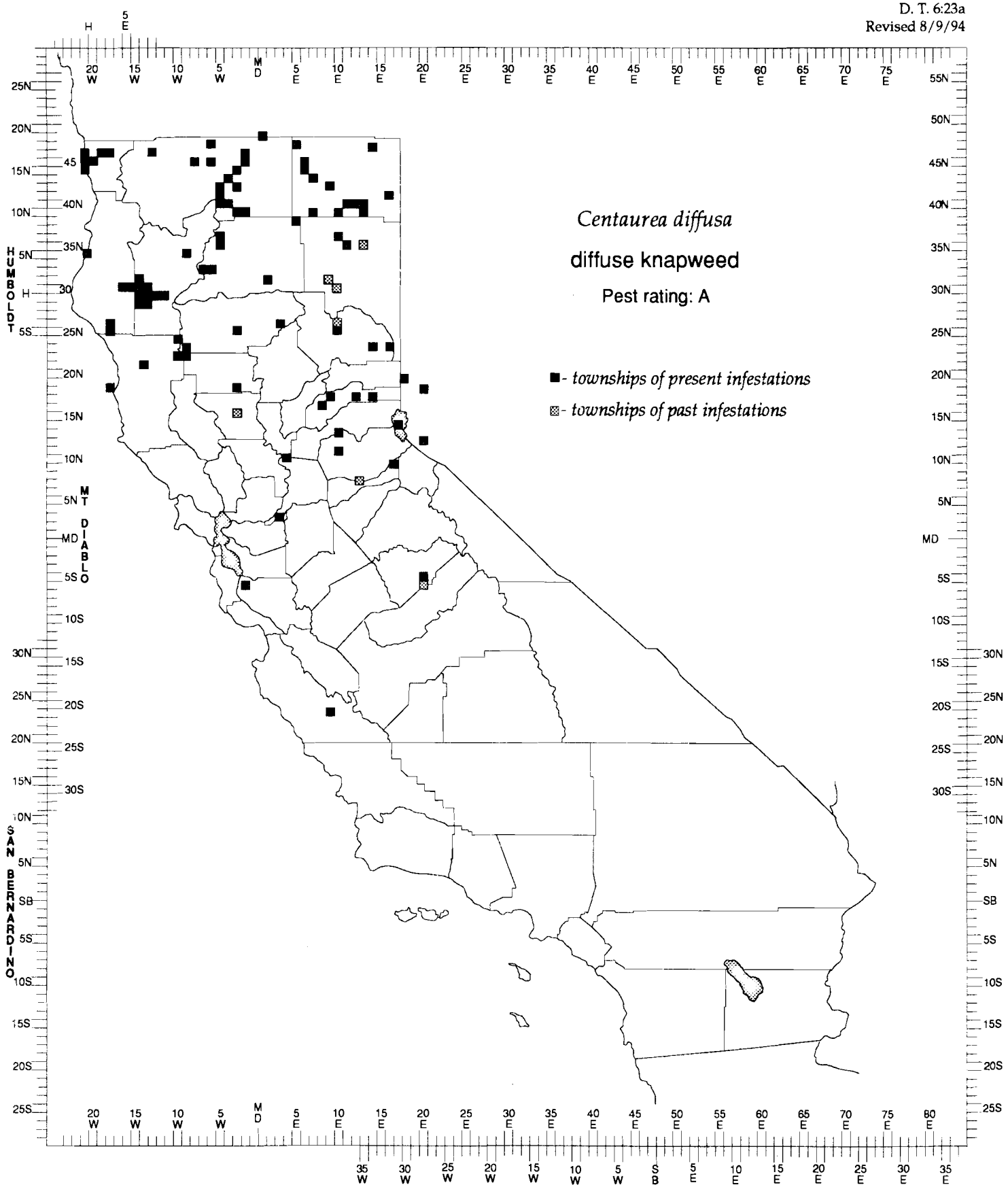

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46

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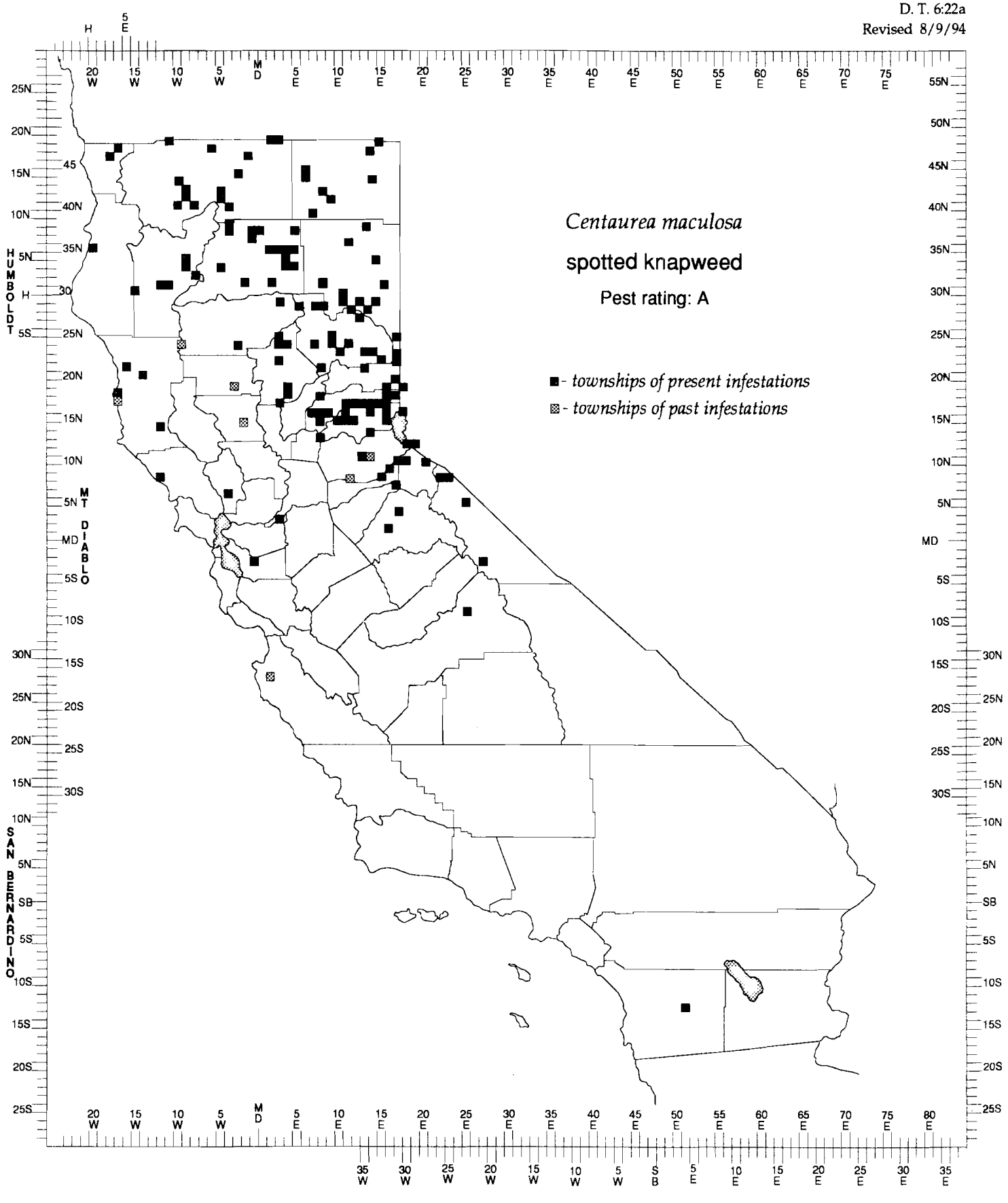

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47

DETECTION MANUAL
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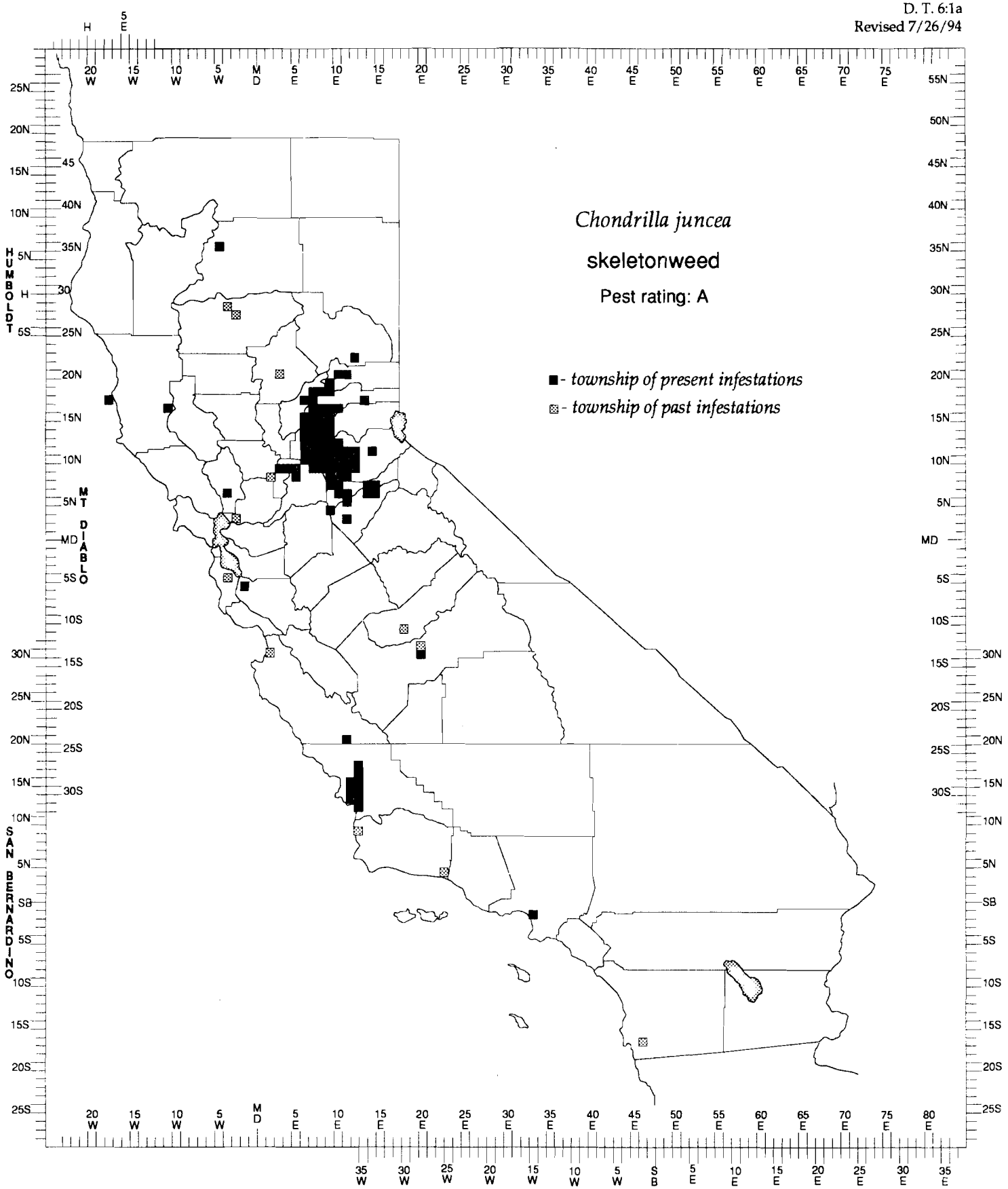

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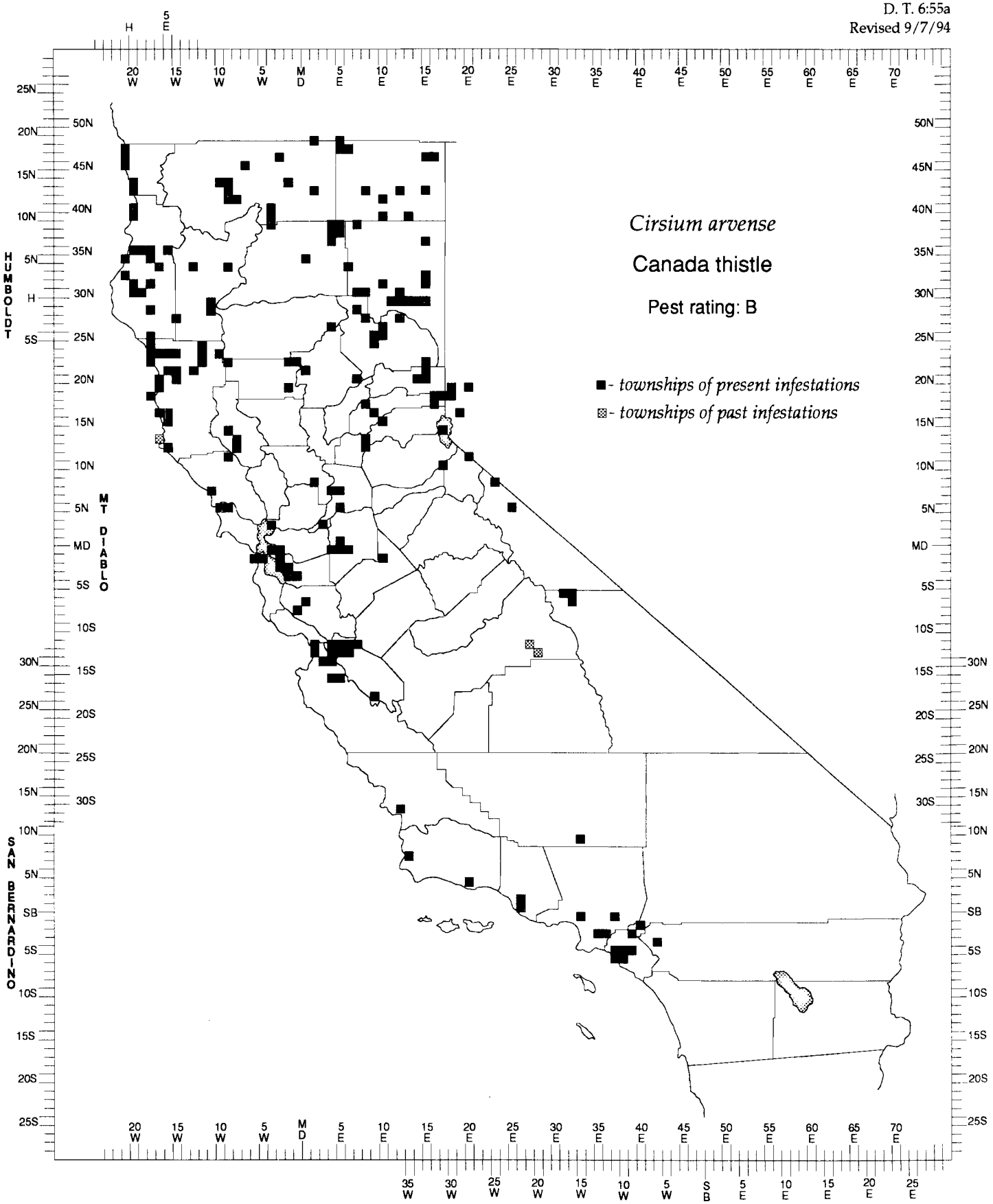

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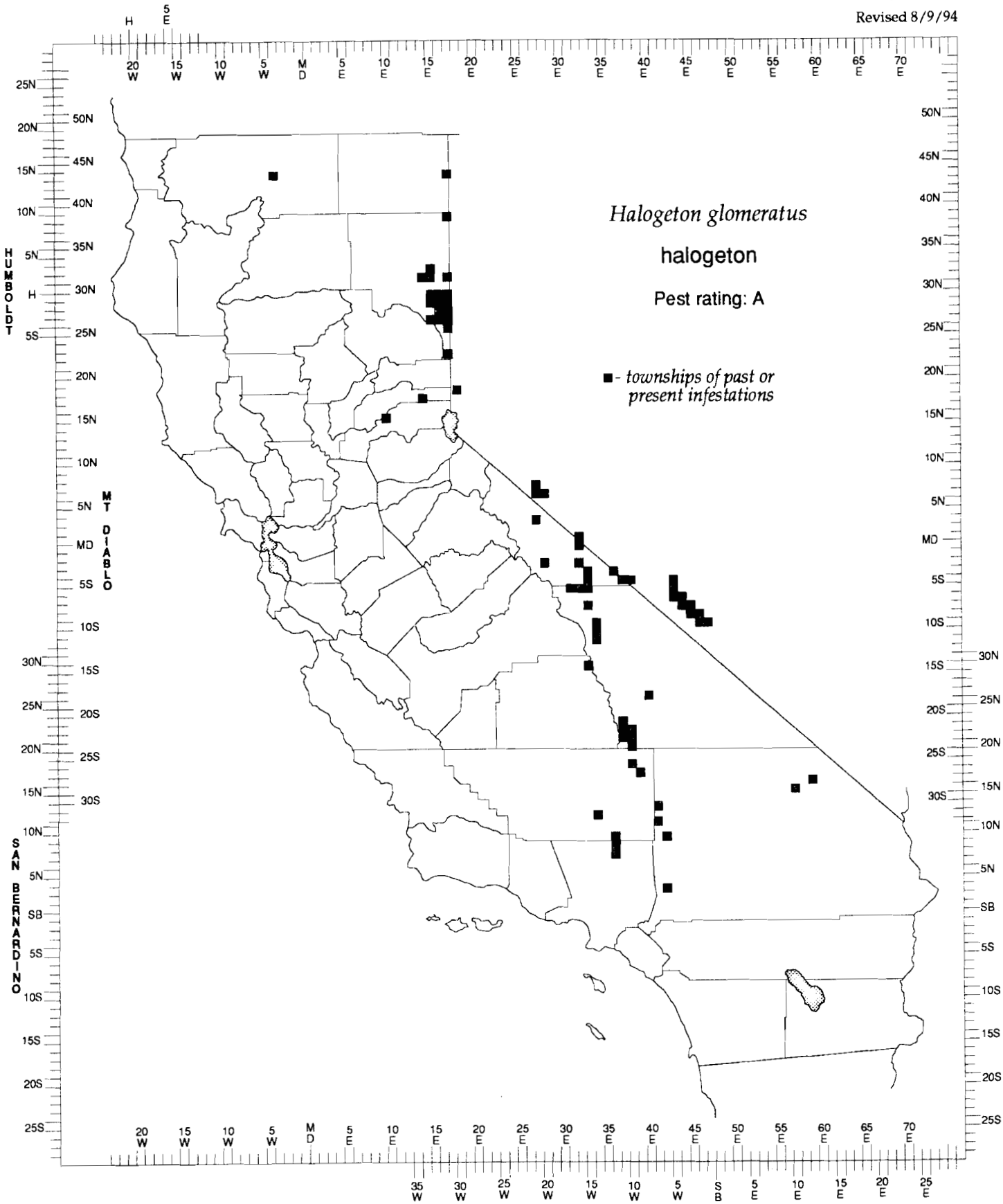

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DIVISION OF PLANT INDUSTRY - ANALYSIS & IDENTIFICATION/BOTANY

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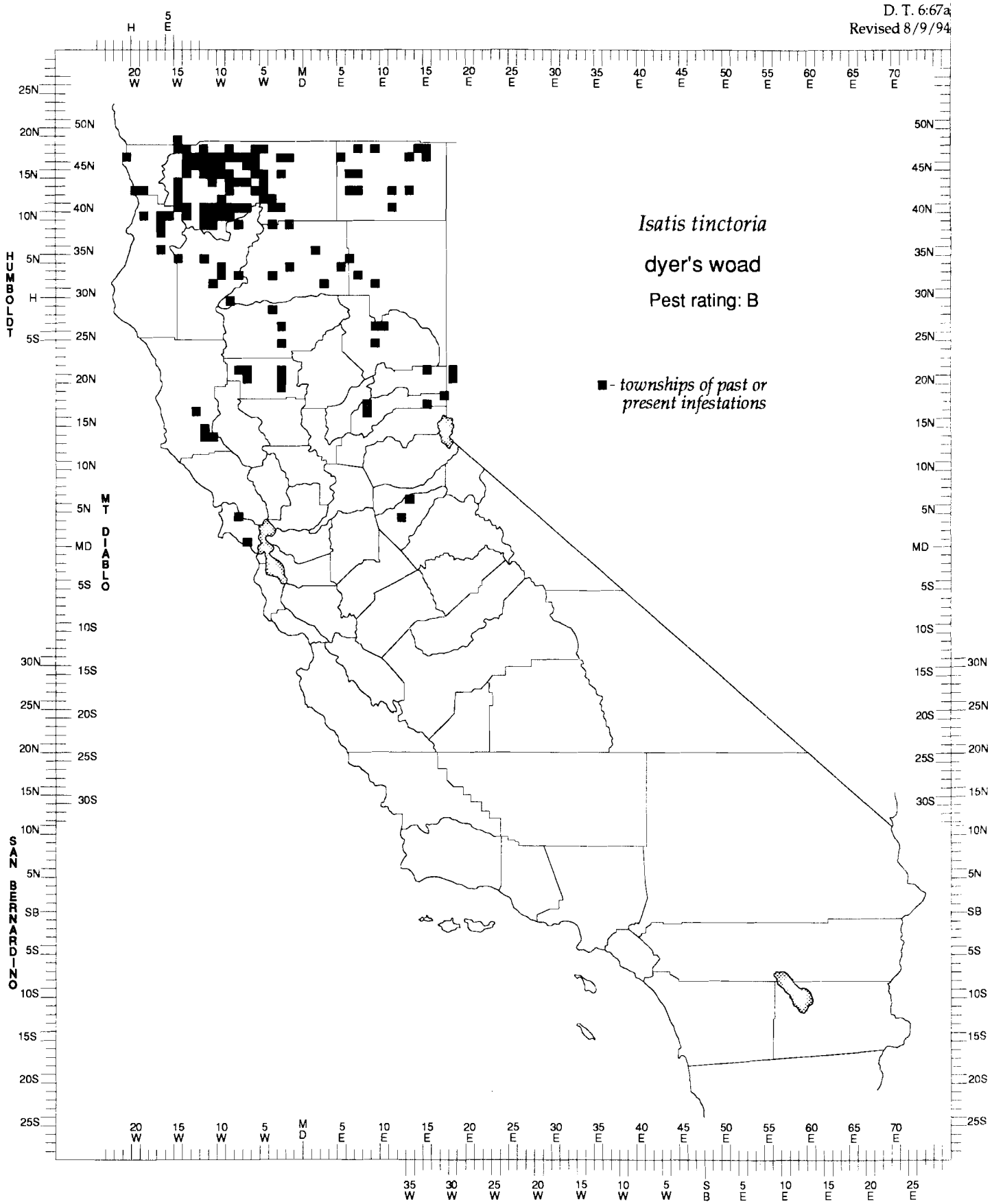

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DIVISION OF PLANT INDUSTRY - ANALYSIS & IDENTIFICATION/BOTANY

51

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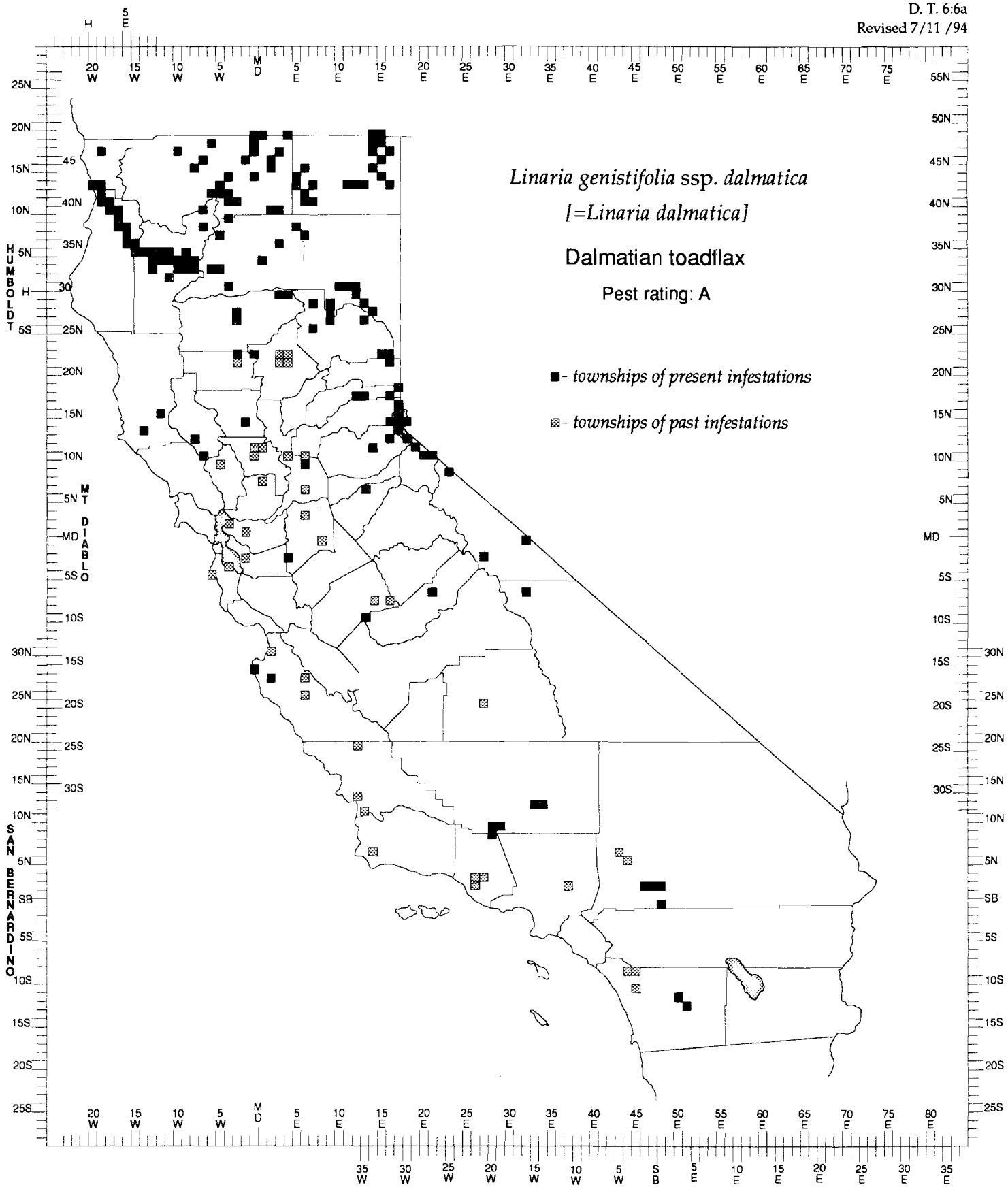

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DIVISION OF PLANT INDUSTRY - ANALYSIS & IDENTIFICATION/BOTANY

52

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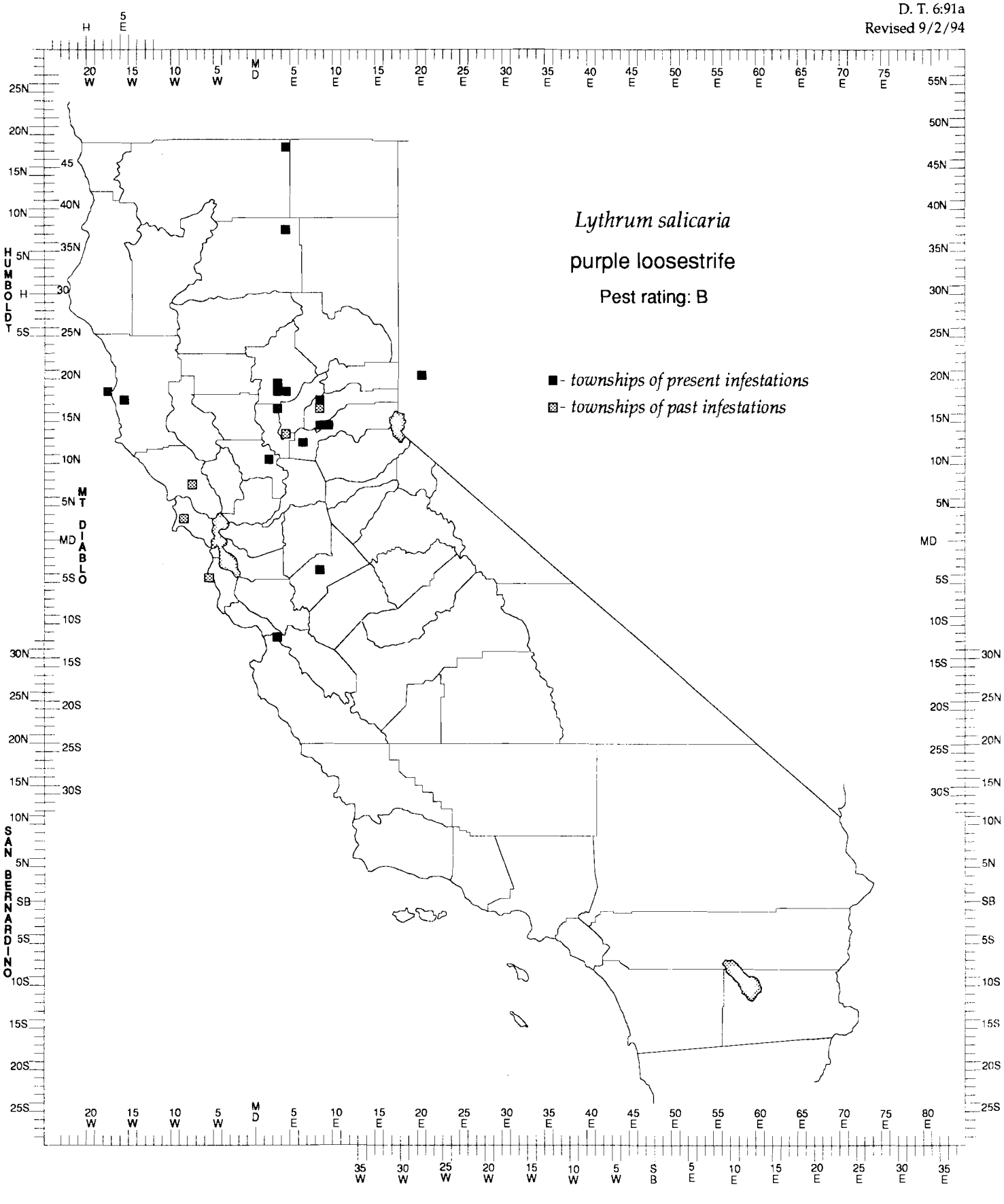

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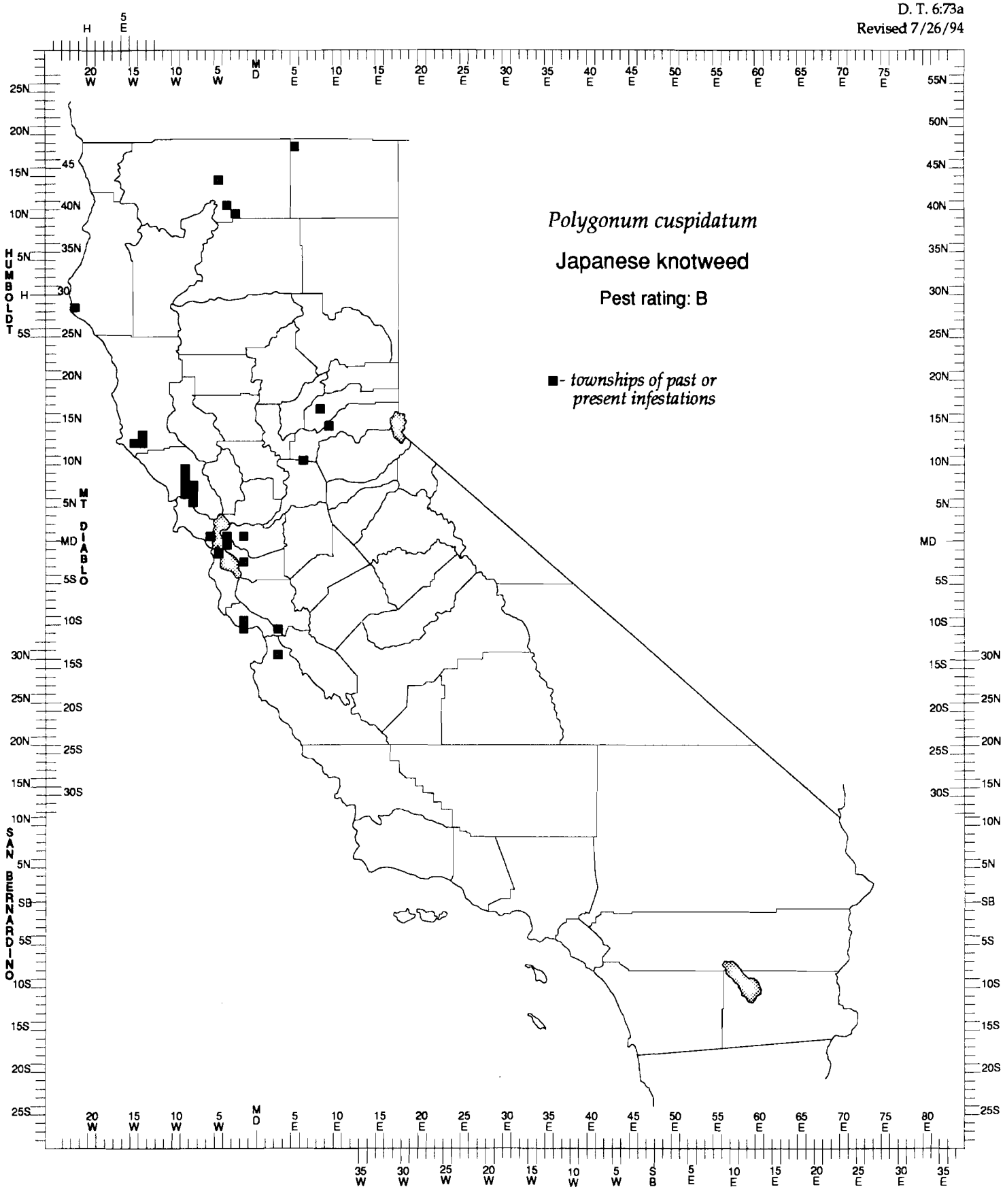

STATE OF CALIFORNIA • DEPARTMENT OF FOOD AND AGRICULTURE

DIVISION OF PLANT INDUSTRY - ANALYSIS & IDENTIFICATION/BOTANY

54

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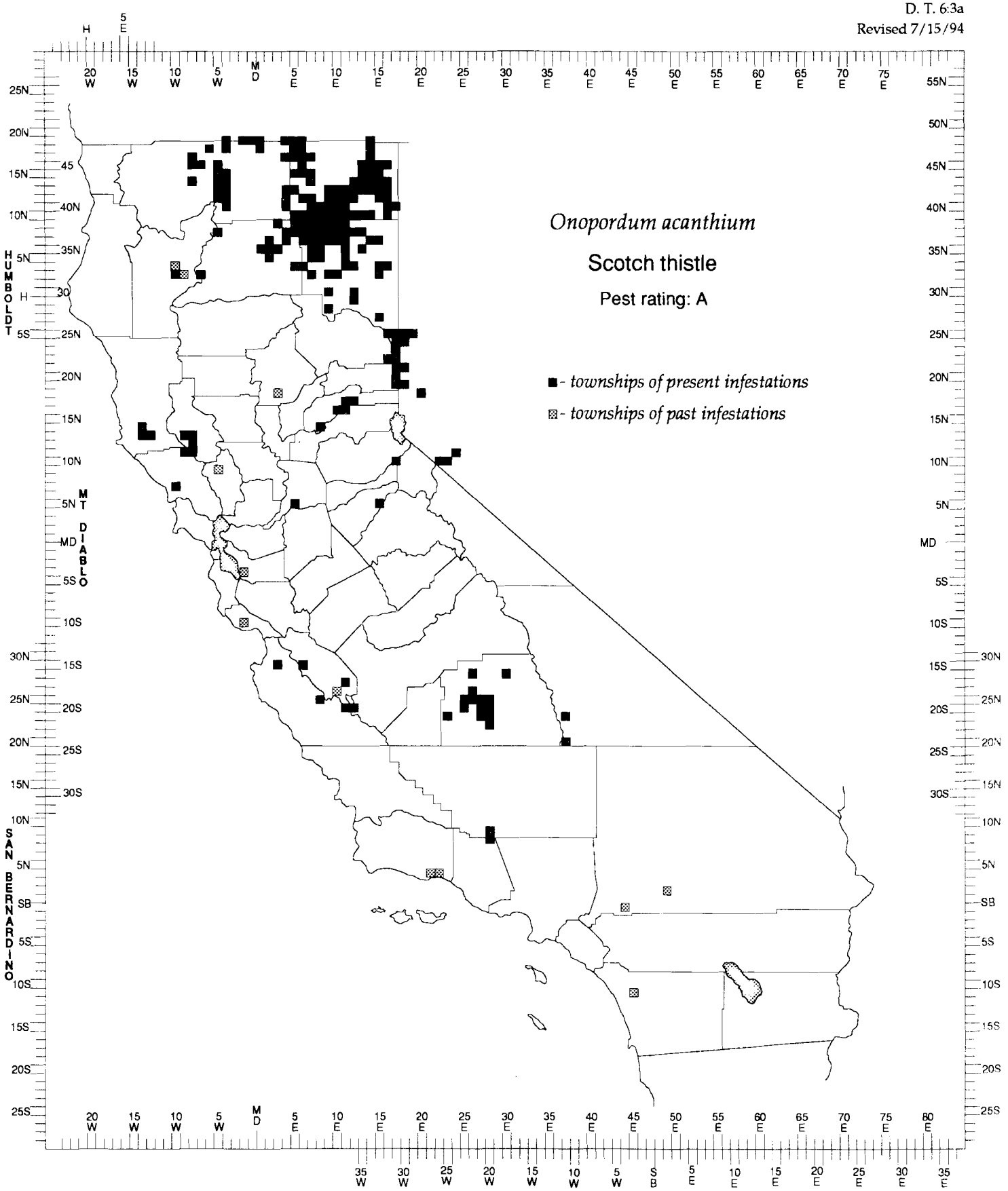
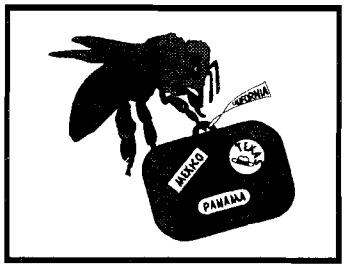


ENTOMOLOGY HIGHLIGHTS

ERRATA

In the quarantine listings in the last issue [CPPDR 13(1-2):17] an "A" rated papaya fruit fly, *Toxotrypana curvicauda*, was reported to have come from Hawaii. The origin of this fly is unknown, but it probably came from Latin America where it is native.

F. Y. I.



After months of waiting, Africanized honey bee finally was detected in California for the first time on October 24. The find from the Blythe area was determined to be the hybrid Africanized honey bee by Scott Kinnee and Tom Eichlin at CDFA and was confirmed by the USDA, ARS, U. S. Bee Research Lab. Even though the discovery postdates this issue of the CPPDR, we felt it was important enough to note. Please look for a full report on this find and any future finds in the following issues.

FRUIT FLY DETECTION TRAPPING

The following lists represent the fruit fly finds for the summer:

MEDITERRANEAN FRUIT FLY, *Ceratitis capitata*, -(A)-

County	City	Date	#M/F/Stage	Trap	Host	Collector
San Bernardino	Upland	07/19	1/0	McPhail	apricot	Elliott
Los Angeles	San Dimas	07/19	1/0	McPhail	peach	Kobziff
Ventura	Somis	09/29	0/2	McPhail	fig	Enneking

ORIENTAL FRUIT FLY, *Bactrocera dorsalis*, -(A)-

County	City	Date	#M/F/Stage	Trap	Host	Collector
San Mateo	Millbrae	07/25	1/0	Jackson	apple	Garcia
San Diego	Oceanside	08/15	1/0	Jackson	fig	Ghebretnsea
Santa Clara	Milpitas	08/29	1/0	Jackson	peach	Filice
Los Angeles	Verdugo City	09/06	1/0	Jackson	apple	Dunham

MEXICAN FRUIT FLY, *Anastrepha ludens*, -(A)-

County	City	Date	#M/F/Stage	Trap	Host	Collector
Santa Barbara	Santa Barbara	08/25	0/1	McPhail	sapote	Penate
San Diego	San Diego	09/29	1/0	McPhail	orange	Smith

GUAVA FRUIT FLY, *Bactrocera correcta*, -(A)-

County	City	Date	#M/F/Stage	Trap	Host	Collector
Los Angeles	Huntington Park	08/02	1/0	Jackson	peach	de la Hoya

PEACH FRUIT FLY, *Bactrocera zonatus*, -(A)-

County	City	Date	#M/F/Stage	Trap	Host	Collector
Riverside	Moreno Valley	09/13	1/0	Jackson	olive	Madiel

OTHER SIGNIFICANT TRAPPING

JAPANESE BEETLE, *Popillia japonica*, -(A)- Only two Japanese beetles were trapped in the last three months. The first was trapped on an ornamental shrub in Los Angeles, Los Angeles County. Pierce made the find on July 21. The second find was made by Myers at Oakland International Airport, Alameda County, on August 10.

GYPSY MOTH, *Lymantria dispar*, -(A)- This summer's gypsy moth finds are listed in the following table:

County	City	Date	#M/F/Stage	Host	Collector
Alameda	Berkeley	07/06	adult	elm	Myers
Orange	Anaheim	07/19	adult	magnolia	Salazar
Napa	Angwin	07/19	adult	oak	Anderson
Sacramento	Citrus Heights	07/20	adult	lawn	Neal
Shasta	Cottonwood	07/21	adult	?	Kjos
Nevada	Grass Valley	08/02	adult	cedar	Knappen
Santa Clara	Monte Sereno	08/04	adult	?	Brian
Los Angeles	Encino	08/09	adult	?	Cardenas
Sonoma	Santa Rosa	08/15	1/0	oak	Stewart
Santa Clara	Los Altos Hills	08/15	1/0	eucalyptus	Walker

NEW STATE RECORDS

ARTICHOKE FLY, *Terellia fuscicornis*, -(Q)- An exotic fly (Tephritidae), *Terellia fuscicornis* (Loew), native to the Mediterranean Basin (southern Europe, northern Africa) has been found in California. Although often referred to as "fruit flies," such as Oriental fruit fly, many members of this Diptera family (Tephritidae) feed in flowers and seed heads of the sunflower family Asteraceae (formerly Compositae). The first collections were made in mid-July from artichoke seed fields located near Tracy, **San Joaquin** County, and Chowchilla, **Madera** County. The following report was prepared by Dick Penrose:

Distribution and Hosts in California

The first collections were made in mid-July from artichoke seed fields located near Tracy, San Joaquin County, and Chowchilla, Madera County. Specimens were submitted to CDFA for identification via the San Joaquin and Monterey County Agricultural Commissioner Offices respectively. Concurrent with these collections, Jere Schweikert, an entomologist employed by the California Academy of Sciences, San Francisco, observed and collected adults on cardoon flowers at two locations in southern **Sonoma** County. After an unsuccessful attempt to identify these flies using Foote, Blanc, and Norrbom's recently published "Handbook of the Fruit Flies of America North of Mexico," Jere consulted foreign taxonomic works and concluded that the flies were *Terellia fuscicornis*, a European species. After this realization, Jere collected additional specimens, including larvae from the original find site in Sonoma County, and hand carried them to Sacramento where F. "Louie" Blanc confirmed Jere 's identification. On August 1, Louie brought these specimens to CDFA and to the attention of biosystematist Karen Corwin, who then identified the collections from seed fields in San Joaquin and Madera counties.

Since these initial collections, surveys conducted by CDFA staff and detection entomologists in cooperation with county agricultural commissioner personnel have revealed that *T. fuscicornis* is widespread around the San Francisco Bay Region, especially in areas where artichoke grows as an escape or where artichoke thistle is of common occurrence. Currently (as of August 19, 1994), this tephritid is known to be present in feral hosts in the following counties: Sonoma, Napa, San Mateo, Solano, Contra Costa, Santa Clara, Sacramento, and Santa Cruz. Since all currently available material from San Joaquin and Madera counties came from commercial plantings, the question of whether the fly is established in these regions remains unanswered. Based on currently available distributional data *T. fuscicornis* is probably also present (at least) in Marin and Alameda counties. Surveys need to be conducted in coastal counties both north and south of the Bay Area to determine the extent of the fly's range within the state.

Known California host plants include: *Cynara scolymus* (globe artichoke) and *C. cardunculus* (cardoon, artichoke thistle). Empty pupal cases which appear to be those of *T. fuscicornis* have also been recovered from the dried flower heads of milk thistle, *Silybum marianum*, near Petaluma.

These observations and the verification of the fly's presence at least two years ago in Santa Clara County, suggests that *T. fuscicornis* is probably not a recent emigrant to California.

Economic Impact

T. fuscicornis has been reported as a pest of globe artichoke in Greece and Turkey. Field experiments testing host choice of candidate biological control agents conducted recently near Thermi, Greece, demonstrated that *T. fuscicornis* is capable of developing large populations on unprotected flower heads. During this experiment, nearly 4,800 adults were reared from 41 flower heads of artichoke varieties grown commercially in California. This gives a population density of 116,500 adults per 1,000 flower heads.

Currently, there is little artichoke seed grown in California but according to Neil DeVos, Elkhorn Research and Development, this situation may change dramatically in the future. Because of cost factors, pest problems (primarily artichoke plume moth), and the prospective loss of pesticide registrations, California artichoke growers are interested in replacing the current practice of vegetative propagation with direct seeding. Should this transition be attempted, *T. fuscicornis* could become a significant pest requiring the development of management strategies for seed producers .

In contrast to seed production, preliminary observations suggest that this fly may be of little consequence to commercial artichoke producers since it appears to attack the plant only after the artichoke heads have begun to bloom.

While this fly may be considered a pest by the artichoke producers it is widely established and larvae are moderately abundant in the seed heads of artichoke thistle, a "B" rated weed. Consequently, it may be or prove to be, a beneficial biological control agent for this and perhaps other exotic thistles.

Recommendations

This insect's widespread distribution, association with one (and perhaps more) generally distributed weedy thistles, and potential as a biological control agent preclude its extirpation from California. Therefore, CDFA Pest Detection/ Emergency Projects Branch (PD/EP) should not attempt to eradicate/control the species. Future activities concerning this fly should be the primary responsibility of Biological Control personnel in the Integrated Pest Control (IPC) Branch. PD/EP can continue to assist in delimitation, but investigations concerning impacts on host thistles, fly bionomics, behavior, and host specificity (all of which could help growers develop management strategies) should be carried out by, or under, the supervision of IPC.

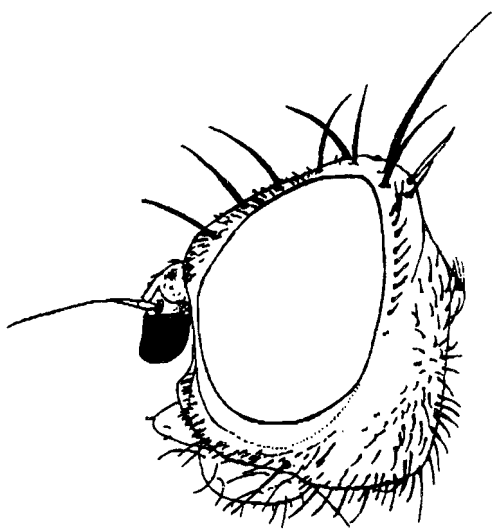
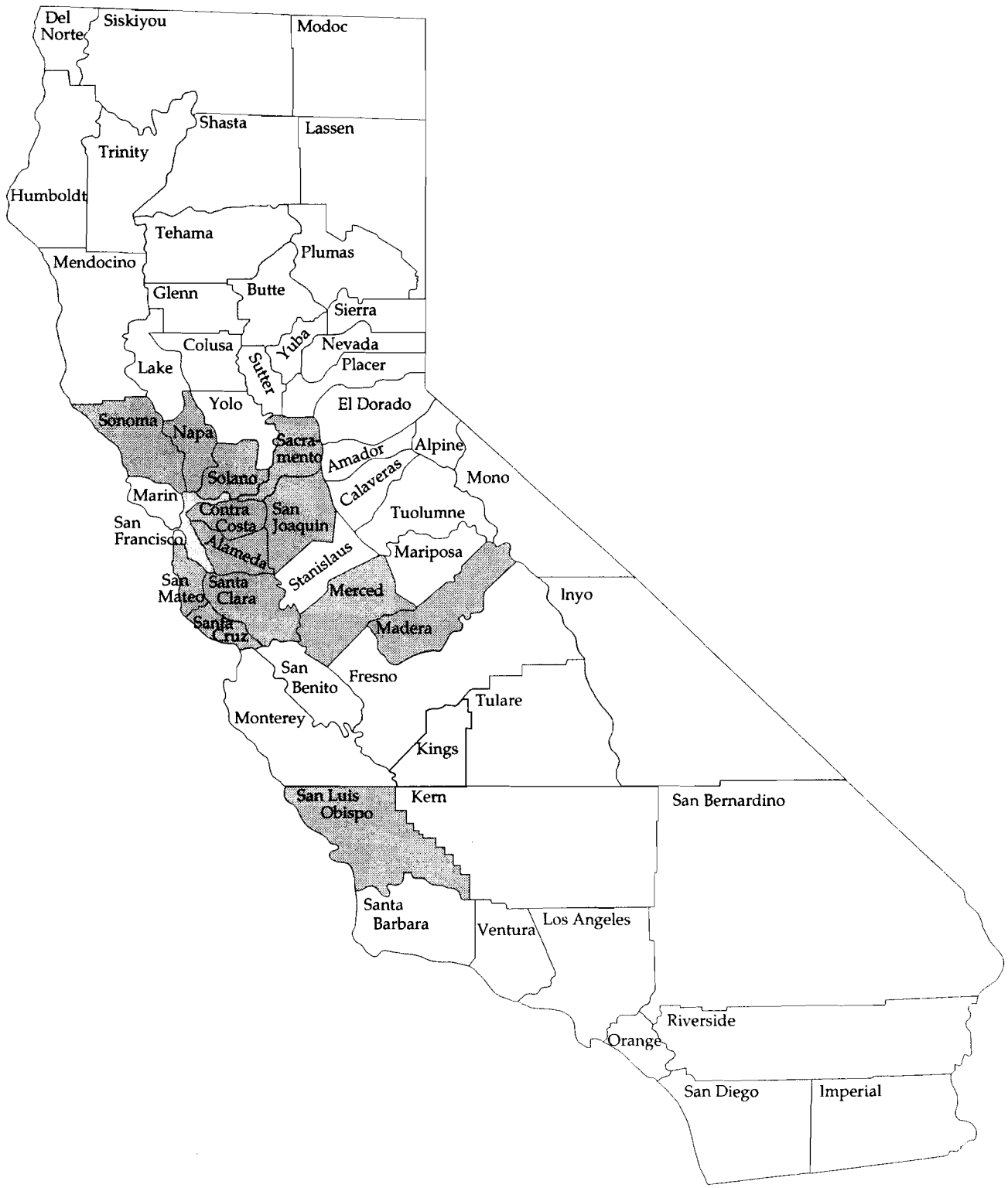


Fig. 1. *Terellia fuscicornis*. Lateral view of head. Darkened tip of antennal segment 3 is distinctive for this species. After Freidberg and Kugler, 1989. Fauna Palaestina, 4. Insecta Tephritidae. Israel Academy of Sciences and Humanities, Jerusalem. 212 pp.

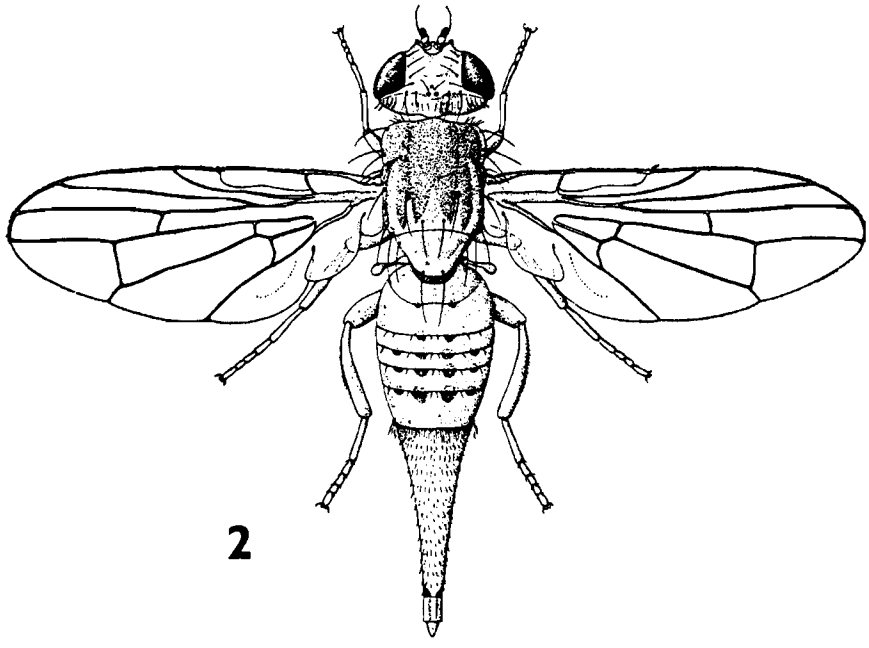
T. fuscicornis has been given a "Q" rating pending survey results, a literature search, and other information gathering activities. Preliminary observations suggest that this tephritid may be of little concern to commercial artichoke growers since egg laying appears to occur only after heads have begun to bloom. The emergence of an average of over 100 adults per artichoke head from plants grown in test plots in Greece does suggest, however, that this species has the potential of causing serious damage to unprotected commercial fields planted for seed.

The following list summarizes the initial finds of the artichoke fly in California:

County	City	Date	Stage	Host	Collector
San Joaquin	Tracy	07/15	adult	C. scolymus	Barnes
Madera	Chowchilla	07/20	adult	C. scolymus	Oliver
Sonoma	Sonoma	07/23	adult/larva	C. cardunculus	Schweikert
Sonoma	Sonoma	07/24	adult/larva	C. cardunculus	Schweikert
Sonoma	Sonoma	07/30	adult/larva	C. cardunculus	Schweikert
Solano	Vallejo	08/02	larva/pupa	C. cardunculus	Bettiga
San Mateo	Redwood City	08/04	adult	C. scolymus	Finley
Solano	Vallejo	08/08	adult/larva	C. cardunculus	Lubinski
Sonoma	Petaluma	08/08	adult/larva	C. cardunculus	Penrose
Sonoma	Schellville	08/08	adult/pupa	C. scolymus	Lubinski
Santa Clara	San Jose	08/09	adult	automobile	Clark
Mendocino	Talmage	08/09	pupa	C. cardunculus	Xerogeanes
Contra Costa	Richmond	08/10	adult	C. cardunculus	Takahashi
Contra Costa	Moraga	08/10	adult	C. cardunculus	Takahashi
Sacramento	Isleton	08/10	adult/larva	C. cardunculus	Penrose
Santa Cruz	Watsonville	08/16	adult	C. cardunculus	Takahashi
Santa Clara	San Jose	08/18	?	C. cardunculus	Bingham
Santa Barbara	Santa Barbara	08/19	adult	inside house	Craig
Merced	Merced	08/25	?	C. cardunculus	Bingham
Alameda	Hayward	08/25	adult	C. cardunculus	Esquivel
San Mateo	Redwood City	08/30	adult/larva	C. cardunculus	Swanson
San Luis Obispo	Paso Robles	09/06	?	C. scolymus	Little



Map 1. *Terellia fuscicornis* distribution.



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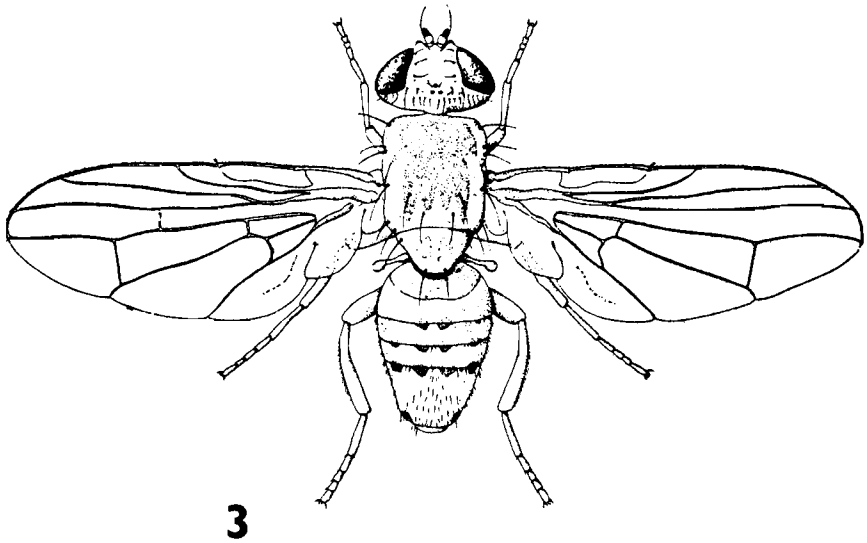

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Figs. 2 & 3. *Terellia fuscicornis*. Fig. 2. Illustration of adult female. Fig. 3. Illustration of adult male. Taken from M. Martelli, Reperti sulla *Terellia fuscicornis* (Loew) (Diptera, Trypetidae).

NEW STATE RECORDS Continued

FIG WASPS, various species, -(Q)- Four species of wasps in two families of the Chalcidoidea that can be placed loosely in the context of "fig wasp" have been found for the first time in California. The collections were made by Dr. Jack Beardsley, formerly on the entomological staff at the University of Hawaii at Manoa, and now enjoying retirement in Arcadia, California. These wasps are associated with *Ficus microcarpa*, the Chinese or tropical banyan tree [also Asian laurel fig and, incorrectly, Cuban laurel (*Ficus retusa-nitida*). Dr. Beardsley had been studying these same wasps in Hawaii and has a manuscript in press dealing with their presence there. Like the finds in California, the presence of these and other fig wasps in Hawaii constituted new state records there. Dr. Beardsley's manuscript will soon be published in the Proceedings of the Hawaiian Entomological Society, but he has gratiously agreed to let us use his identifications and other information in order to report on his findings here in California.

These wasps have been collected over a period of months by Dr. Beardsley near his home in Arcadia, **Los Angeles** County. One species, *Odontofroggatia galili* Wiebes, has apparently been recorded from California previously, but not by this department. The new wasps include:

Eupristina (Parapristina) verticillata Waterston (Agaonidae),
Odontofroggatia ishii Wiebes (Agaonidae),
Walkerella microcarpae Boucek(Agaonidae),
Sycophila sp. (Eurytomidae).

The important species, *Eupristina verticillata*, is apparently the pollinator for the banyan tree. In Hawaii, according to Beardsley, the tree did not produce viable seeds or mature fruit. This wasp species was purposely introduced into Hawaii prior to 1938 as a pollinator in an effort to use the tree in reforestation programs. Unfortunately, the tree has become somewhat of a pest because it is now growing either too profusely or in unwanted places, particularly in rock walls and other masonry. This wasp and the tree now coexist in Florida, Bermuda, Mexico, Honduras, San Salvador, and Brazil as well as in California. Dr. Beardsley suggests that the tree may well become a problem in some of these areas as well.

Fig. 4. *Ficus microcarpa* var. *hillii*. Illustration taken from Elliot and Jones, Encyclopedia of Australian Plants. (4):287, 1986.

The other species now in California apparently feed in the fruit of the banyan. The fruit are technically called "syconia," and the wasps which feed in the fruit are called "sycophiles." The actual relationships of the wasps in the fruit are not completely known. As many as 22 different species were supposedly reared from *F. microcarpa* alone, and there are other wasps associated

with other species of *Ficus*; the blastophaga wasp of common fig is an example. Some of the species are not fruit feeders, but are probably parasites and hyperparasites of the other sycophiles. It is believed by Dr. Beardsley that there are probably other species here in California also.

Dr. Beardsley suggests that the wasps in this group are attracted readily to lights at night. Since many airplanes that fly the Pacific circuit are loaded under lights at night, it is reasonable to assume that the wasps can be transported in this manner. It is also possible that fruit could readily drop onto cargo containers and dunnage which is then off-loaded at other destinations where the banyan occurs.

According to Stange and Knight (1987), the Agaonidae can be readily recognized by a rasp-like appendage on the mandibles, a strongly grooved head, and a short hind tibia which is less than one-half the length of hind femur and hind tarsus. In *Eupristina*, the moniliform antennal segments have setae that are several times the length of the antennal segment itself (Fig. 4), the fore femur is greatly enlarged, and the head is strongly flattened dorsoventrally. The males are wingless. A line drawing is provided for *Odontofroggatia ishii* on the next page.

Fig. 4. *Eupristina* antenna showing elongated setae. Illustration taken from Stange and Knight, Fig pollinating wasps of Florida, Florida Dept. Agric. and Consumer Serv., Div. Plant Industry, Entomol. Circ. 296. 4 p., 1980.

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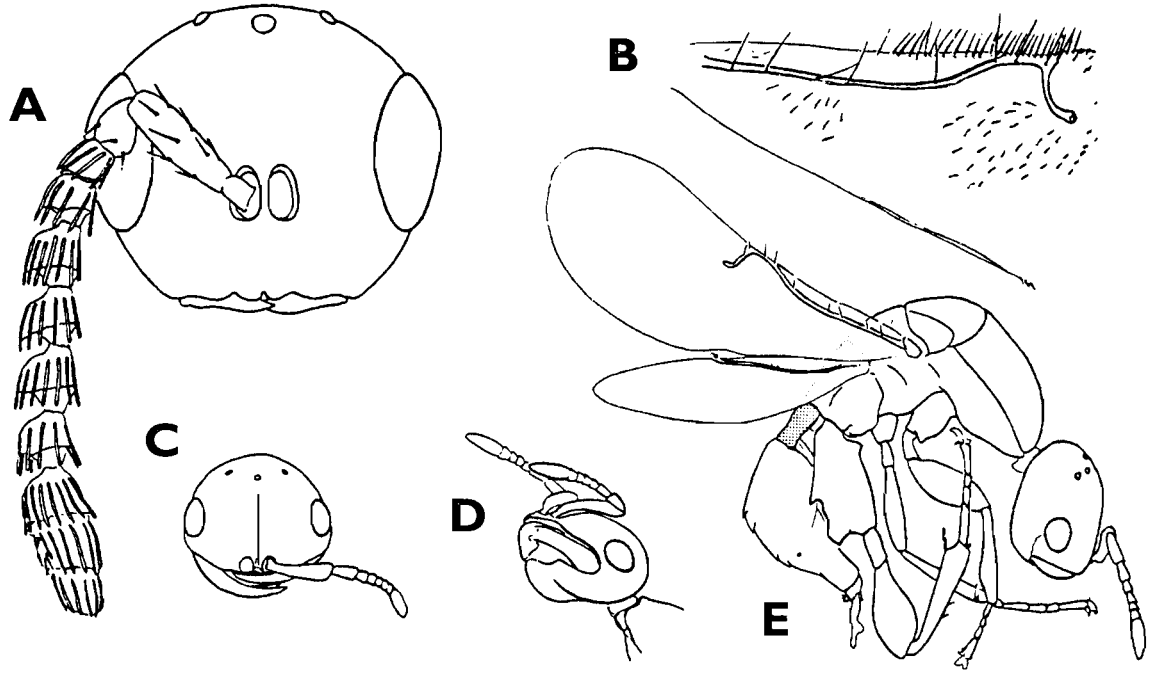


Fig. 5. *Odontofroggatia galili.* A: Female head and right antenna, frontal aspect. B: Wing venation. C: Head and left antenna, frontal aspect. D: Head, oblique ventral aspect. E: Lateral aspect of male. Illustrations taken from Wiebes, The genus *Odontofroggatia* Ishii (Hymenoptera Chalcidoidea, Pteromalidae Epichrysomallinae), Zool. Meded. Leiden. (56):1-6, 1980.

NEW COUNTY RECORDS

BLUEGUM PSYLLID, *Ctenarytaina eucalypti*, -(C)- First found in 1991, it has spread far and wide. With the recent find in Eureka, **Humboldt** County, the insect now occurs in all coastal California counties except Del Norte. The new record was collected by Pete Haggard on July 29.

EUCALYPTUS PSYLLID, *Blastopsylla occidentalis*, -(C)- Another recently introduced eucalyptus feeder, this psyllid has been found for the first time in **Sacramento** County. The collection was made in Sacramento from *Eucalyptus nicholi* by former Department of Food and Agriculture employee Stan Mather on August 20.

DOUGLAS FIR MEALYBUG, *Puto profusus*, -(C)- This mealybug is a native species that was first found and described from specimens collected in 1933 at Carrville, Trinity County. The only other known location was a collection made in 1964 at Prattville, Plumas County. The third known collection is a new record for **Tulare** County. The collection was made at the 6,000 foot level in the Greenhorn Mountains on June 18 by Tom Schackman. The Tulare County collection was from sugar pine, *Pinus lambertiana*, but it is also found on *Abies* species and on Douglas fir, *Pseudotsuga taxifolii*.

OTHER SIGNIFICANT FINDS

Populations of two species of Homoptera have been especially heavy on native oak trees this year. Numerous samples have been submitted to the laboratory this past season from various areas in northern and central California. It is not known what has caused the outbreaks.

WOOLLY OAK APHID, *Stegophylla* sp. -(C)- At least 4 collections were made at: Quincy, Plumas County (2), Los Altos, Santa Clara County and Gridley, Butte County.

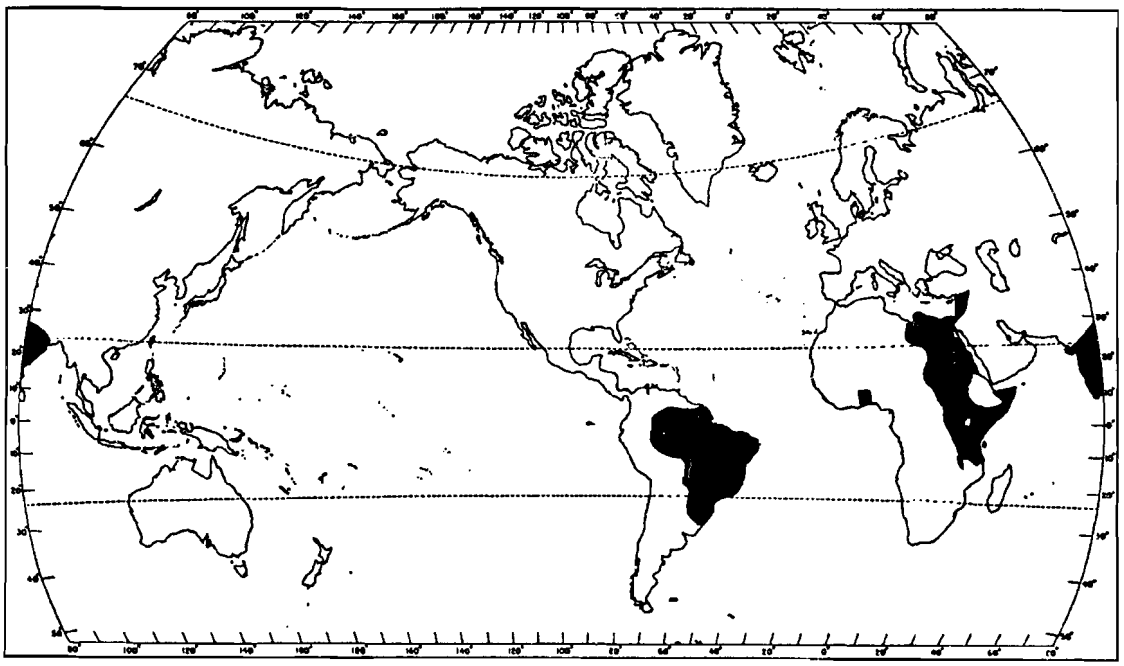
OAK PHYLLOXERA, *Phylloxera* sp. -(C)- At least 5 collections were made at: Menlo Park, San Mateo County; Marysville, Yuba County; San Diego, San Diego County; Fresno, Fresno County and Davis, Yolo County.

SIGNIFICANT FINDS IN OTHER STATES AND COUNTRIES

BLACK VINE THRIPS, *Retithrips syriacus*, -(Q)- This pest of grapevines and other crop pests has recently been found in Florida.

Economic Importance: Although the species is principally a pest of grapevines, it has caused severe loss to leaves and bolls of cotton in southern India, Malawi, and Tanzania when conditions are hot and dry. Black vine thrips sucks sap from the leaves and mars the fruit of many plants. As a result, defoliation and shriveling occur. In the Near East, where this important thrips is best known as a pest of grapes, trees and shrubs, serious infestations of castorbeans have been recorded. *R. syriacus* damage generally hinders the normal development of the host plants.

Distribution: Brazil, Egypt, Ghana, India, Israel, Kenya, Lebanon, Libya, Malawi, Somalia, Sudan, Syria, Tanzania, and Uganda. (See Map 2 on next page.)



Map 2. General distribution of *Retithrips syriacus* (Mayet). Taken from Insects not known to occur in the United States, Black vine thrips (*Retithrips syriacus* Mayet), U. S. Dept. Agr. Coop. Econ. Ins. Rpt. 17(17):354-355, 1967.

Hosts: The host list of more than 50 species includes grape, cotton, pear, plum, quince, rose, pecan, walnut, persimmon, avocado, castorbean, coffee, myrtle, vegetables and other plants.

Life History and Habits: Bionomics in Israel are as follows: Mating occurs shortly after emergence, but sometimes reproduction is parthenogenetic. The female lays a maximum of 80 eggs usually in the leaf tissue, but occasionally on the leaf surface. The egg stage lasts 10-30 days. Larvae do not wander about after hatching but feed immediately, usually in groups. As the larva feeds, it carries a droplet of feces on the tip of the abdomen. Often, the collection of feces is larger than the insect. When the material becomes too heavy, the larva deposits the drop on a leaf and a new droplet begins to form. The older the larva, the smaller the drops become. Both larvae and pupae often arrange themselves in groups of 6-50 in a circle with the heads toward the center. The larval stage lasts 6-35 days and pupal stage 2-21 days. A generation may be completed in little more than 3 weeks in late June to early September. During this time 4 generations usually occur and 3 others occur from late September to May. Adults overwinter and oviposit during warm periods. Mortality is high during the winter generations. The most favorable temperature range for development of the black vine thrips is 77-86°F. Temperatures above 98° may be lethal to all stages.

Description: ADULT - Dark, blackish brown, with appendages lighter brown, tarsi and 5th antennal segment pale. Newly emerged adults lighter and redder. Body about 1.5 mm. long in female, 1.3 mm. in male, heavily reticulate, with no visible bristles. Antennae 8-segmented, short, with terminal style slender. Ocellar hump pronounced, overhanging frontal costa. Head and prothorax small, decidedly wider than long. Pterothorax, or wing bearing thoracic segments, of female very stout, of male stout. Abdomen stout, as broad as pterothorax at base, tapering to narrow apex. Forewings short (about 0.9 mm. in female, 0.7 mm. in male), broad; without visible bristles, with large

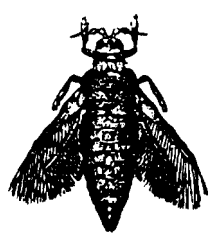


Fig. 6. *R. syriacus*, adult male. Taken from Insects not known to occur in the United States, Black vine thrips (*Retithrips syriacus* Mayet), U.S. Dept. Agr. Coop. Econ. Ins. Rpt. 17(17):354-355, 1967.

thickened area in basal part of fore vein and 3 smaller thickened areas distally along costal margin. PUPA - Less brilliant red than larva. Entire body truncate with sensory bristles. Wing pads longer than in prepupa. Eyes large, compound, resembling those of adult. LARVA - Vermilion red with yellow head and appendages. First 4 segments of antenna large and bulky but last 3 filiform.

Synonymy: *Retithrips syriacus* (Mayet) has been recorded as *Heliothrips syriacus* Mayet, *Retithrips aegyptiacus* Marchal, *Dictyothrips zanoniana* Del Guercio and *Stylothrips bondari* Morgan.

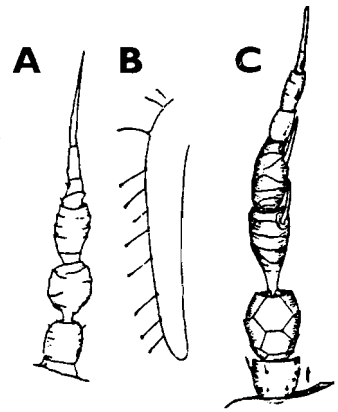


Fig. 7. A: Antenna of newly hatched larva. B: Wing pad of pupa. C: Antenna of adult female. Taken from Insects not known to occur in the United States, Black vine thrips (*Retithrips syriacus* Mayet), U. S. Dept. Agr. Coop. Econ. Ins. Rpt. 17(17):354-355, 1967.

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Adult illustration from Del Guercio; antennae and pupal pad from Rivnay.

BOLL WEEVIL, *Anthonomus gradis*, -(A)- Boll weevil was found in the San Luis area in Mexico on August 18. A total of 131 weevils have now been found. Three fields were treated with ULV malathion. The area is located about 12 miles south of the town of Algodones and the U. S. border, near Yuma. A quick response was made by the Imperial County Agricultural Commissioner's Office and CDFA staff to deploy boll weevil traps in cotton growing areas and along transportation routes in Southern California.

EXCLUSION

The list on the following page records some of the uncommon and unusual pest interceptions made during the summer of 1994. The list is developed to keep quarantine inspectors and county officials informed on what pests are being intercepted.

"A", "B", and "Q" Rated Arthropods and Mollusks Intercepted in Quarantine June - September 1994

Rating	Species	Common Name	Date	Origin	County	Host	Collector(s)
Q	*Rhizoecus hibisci*	a root mealybug	06/06/94	?	LAX	*Caryota* sp.	Papilli
Q	*Coccus acutissimus*	slender soft scale	06/07/94	Hawaii	ALA	palm/foliage	Seslowe
Q	*Rachiplusia ou*	a plusiine looper	06/07/94	Ohio	LAX	aircraft (cargo door)	Pierce
Q	*Rhizoecus hibisci*	a root mealybug	06/14/94	Hawaii	ORA	*Pheonix roebelenii*	Fernandez
Q	*Diploptera punctata*	pacific beetle cockroach	06/14/94	Hawaii	LAX	automobile	Jackson
Q	*Elimaea punctifera*	narrow winged katydid	06/14/94	Hawaii	LAX	automobile	Jackson
Q	*Adoretus sinicus*	chinese rose beetle	06/15/94	Hawaii	SBD	flowers - cut	Clark
Q	*Ixodes ricinus*	an ixodid tick	06/16/94	?	SON	human	Correio
Q	*Zachrysia provisoria*	a snail	06/16/94	Florida	LAX	*Ficus benjamina*	Banta
Q	*Rhizoecus caladii*	a soil mealybug	06/22/94	Hawaii	LAX	*Raphis* sp.	Papilli
Q	*Zachrysia provisoria*	a snail	06/22/94	Florida	LAX	*Dracaena* sp.	Banta
Q	*Zachrysia provisoria*	a snail	06/27/94	Florida	SAC	?	Hightower
Q	*Coccus capparidis*	capparis soft scale	06/30/94	Hawaii	SJQ	*Schefflera arboricola*	Williamson
Q	*Sybra alternans*	a longhorned beetle	?	Hawaii	LAX	automobile	Jackson
Q	*Hemiberlesia diffinis*	diffinis scale	07/07/94	Florida	ORA	*Ficus benjamina*	Fernandez
Q	*Homalodisca coagulata*	glassy-winged sharpshooter	07/08/94	?	SBA	*Bauhinia varigata alba*	Reeves
Q	*Anomala* sp.	oriental beetle	07/12/94	?	ALA	aircraft	Tran
A	*Apis m.* "Africanized"	africanized honey bee	07/12/94	Guatemala	LAX	lashing eye	Pearson
Q	*Rhizoecus hibisci*	a root mealybug	07/13/94	Hawaii	LAX	*Rhapis* sp.	Mehraban
Q	*Rhizoecus hibisci*	a root mealybug	07/13/94	Hawaii	LAX	*Ravenea rivularis*	Banta
Q	*Philephedra tuberculosa*	a soft scale	07/13/94	Costa Rica	SJQ	*Codiaeum* sp.	Reed
Q	*Lineodes* sp.	a pyralid moth	07/13/94	Hawaii	LAX	produce	Herrera
Q	*Protaetia fusca*	mango flower beetle	07/13/94	Kentucky	SFO	automobile	Olmsted
Q	*Paleocallidium rufipenne*	a longhorned beetle	07/14/94	?	SFO	dunnage	Olmsted
Q	*Araecerus fasciculatus*	coffee bean weevil	07/18/94	?	SBA	dry goods	Tingos
Q	*Camponotus abdominalis*	an ant	07/19/94	Florida	SCL	*Spathiphyllum* sp.	Loux
Q	*Aleurocerus palmae*	palm whitefly	07/19/94	Texas	SAC	*Cycas circinalis*	Miller
Q	*Saphonia rufofascia*	a leafhopper	07/28/94	Hawaii	BUT	*Cordyline terminalis*	Ewing
Q	*Anoplolepis longipes*	longlegged ant	07/28/94	Hawaii	BUT	*Cordyline terminalis*	Ewing
Q	*Geococcus coffeae*	a soil mealybug	07/28/94	Hawaii	LAX	*Rhapis* sp.	Sium
Q	*Metaxaglaea viatica*	a noctuid moth	08/20/94	Florida	SMT	houseplants	Rocha
Q	*Incisitermes immigrans*	a termite	08/22/94	Hawaii	SJQ	wood crates	Carey

BORDER STATIONS

MEXICAN FRUIT FLY, *Anastrepha ludens,* -(A)- Live Mexican fruit fly larvae were found at the Blythe Station in commercial mangoes from Mexico. The find was made on June 24 by Mena. Also, dead Mexican fruit fly larvae were discovered in mangoes from Oregon on June 25. Adams made the find at the Smith River Station.

TROPICAL FRUIT PESTS: Foreign fruits (Asian) have been intercepted from vehicles entering California from Canada (or WA, OR). A significant percentage of this produce was found to be infested with live insect pests. These collections are particularly significant because, first, this fruit is allowed free export into Canada with no quarantine restrictions because tropical pest species would not survive in these northern latitudes. Second, these finds have been extremely important because some of the fruit entering California is carrying exotic fruit fly species. The following table outlines some of the important finds:

Pest	Station	Date	Origin	Collector	Host
Ant Pest - *Hypoclinea* sp.	HO	08/19	Washington	McFall	longans
Fruit Flies - Diptera Eggs	HO	08/29	Canada	Calvery	longans
Fruit Fly Eggs - *Bactrocera* sp.	HO	07/19	Washington	Johnson	longans
Fruit Fly Larvae - Acalyptratae	HO	07/17	Oregon	Calvery	litchi nuts
Leaf Miner Moths - Gracillariidae larvae	HO	06/29	Oregon	Middleton	litchi nuts
	HO	07/06	Oregon	Pastell	longans
	HO	07/09	Washington	Ramsey	litchi nuts
	HO	07/10	Canada	Hirsch	litchi nuts
	HO	07/15	Oregon	Gamlin	litchi nuts
	HO	07/15	Canada	Calvery	litchi nuts
Longan Scale - *Thysanofiorinia nephelii*	HO	07/04	Washington	Calvery	longans
	HO	07/06	Oregon	Pastell	longans
	HO	07/17	Canada	Zavala	longans
	HO	07/18	Oregon	Calvery	litchi nuts
	HO	07/18	Oregon	Calvery	longans
	HO	07/21	Canada	Ramsey	longans
	HO	07/21	Canada	Ware	longans
	HO	07/21	Canada	Ware	litchi nuts
	HO	07/22	Canada	Ware	longans
	HO	07/22	Washington	Brown	longans
	HO	07/28	Canada	Hirsch	longans
	HO	07/31	Canada	Baker	longans
	HO	08/02	Canada	Kirby	longans
	HO	08/14	Washington	Zavala	longans
	HO	08/17	Washington	Smith	longans
	HO	08/17	Canada	Hirsch	longans
	HO	08/19	Washington	Ramsey	longans
	HO	08/19	Washington	McFall	longans
Mango Scale - *Radionaspis indica*	SM	07/08	Oregon	Adams	mangoes
Mealybug - *Paracoccus* nr. *melanesicus*	HO	07/21	Canada	Ware	longans
- Pseudococcidae nymphs	HO	07/18	Oregon	Calvery	longans

Pest	Station	Date	Origin	Collector	Host
- *Pseudococcus citriculus*	HO	07/06	Oregon	Pastell	mangosteens
	HO	07/07	Washington	Pastell	durians
	HO	08/19	Washington	Ramsey	longans
Oriental Fruit Fly - *Bactrocera dorsalis*	HO	06/25	Canada	Stone	litchi nuts
	HO	07/07	Canada	Brown	longans
	HO	07/08	Canada	Smith	sugar apples
	HO	07/17	Canada	Brown	litchi nuts
	HO	07/18	Oregon	Calvery	guavas
	DO	08/16	Canada	Chapman	longans
Pacific Mealybug - *Planococcus minor*	HO	07/07	Washington	Pastell	durians
	HO	07/08	Canada	Smith	rambutans
	HO	07/24	Asia	Hirsch	mangosteens
Psidium Whitefly - *Aleurotuberculatus psidii*	HO	07/18	Oregon	Calvery	litchi nuts
Soft Scales - Coccidae mummies	HO	07/18	Oregon	Calvery	longans
- Coccidae nymphs	HO	06/24	Oregon	Stone	litchi nuts
	HO	07/19	Washington	Johnson	mangoes
	HO	07/21	Canada	Ware	litchi nuts
Stem Miner - Gracillariidae larvae	HO	07/21	Canada	Ramsey	longans
	HO	07/21	Canada	Ware	longans
	HO	07/21	Canada	Ware	litchi nuts
	HO	07/23	Canada	Johnson	longans
	HO	07/23	Canada	Stone	litchi nuts
	HO	07/27	Canada	Brown	longans
	HO	07/31	Canada	Baker	longans
	HO	08/17	Washington	Smith	longans
	HO	08/19	Washington	Ramsey	longans
	HO	08/19	Washington	McFall	longans
	HO	08/21	Oregon	Johnson	longans
	HO	08/29	Canada	Calvery	longans
Striped Mealybug - *Ferrisia virgata*	HO	07/22	Washington	Garrison	longans

PLANT PATHOLOGY HIGHLIGHTS

Potato (Common) Scab
by
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Potato tubers with symptoms of common scab were recently submitted to our laboratory for diagnosis (Fig. 8). The common potato scab disease is not frequently observed today because fewer of the smooth skinned potato varieties are grown. The more popular russet potato varieties have considerable resistance, and improvement programs have reduced the use of infected seed. Symptoms can be variable depending on the species or strain of the pathogen and the potato variety involved. Russet scab consists of a superficial cork-like layer; raised scab is erumpent and usually 1-2 mm. high; pitted scab causes lesions up to 7 mm. deep in the tuber. The disease is unsightly, causing a reduction in grade and reduced marketability. In very severe cases of deep scab, a considerable amount of paring waste is usually encountered. Scab develops on tubers in the field while they set and enlarge, but not after harvest or in storage. However, the lesions may provide entry for other storage diseases such as soft rot.

Potato scab is caused by *Streptomyces scabies*. This bacterium grows in chains forming fine wispy filaments when cultured on potato dextrose agar (Fig. 9). While the culture may resemble a fungus, the biochemical and cell wall characteristics are like bacteria. This pathogen is a soil inhabitant and can also cause scab-like lesions on beets, radish, rutabaga, turnip, carrot and parsnip. The pathogen is an opportunist and will attack many crops. Once established in a field, it is almost impossible to eradicate.

Common scab of potato usually is most severe in soils having a high amount of organic matter, especially those that are heavily manured. Liming of soil has increased the incidence of disease while the addition of sulfur to lower the pH decreases severity. The addition of manganese and phosphorus also decreases disease severity. Cultural methods used to prevent severe outbreaks include clean seed programs, long field rotations, resistant varieties, and adequate soil moisture while potatoes form.

References:

Compendium of Potato Diseases, W. J. Hooker, Editor, The American Phytopathological Society, 1981.

Integrated Pest Management for Potatoes in the Western United States, University of California, Publication 3316, 1986.

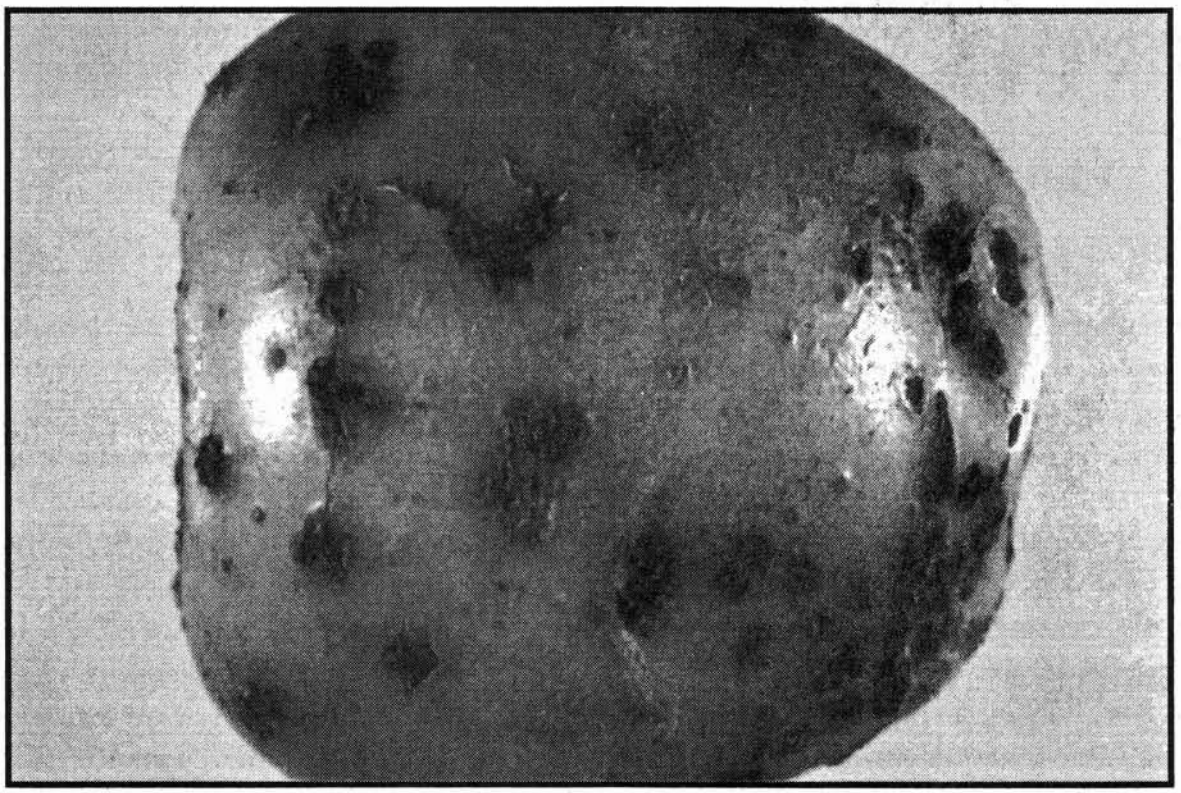

Fig. 8. Symptoms of common scab on a smooth red skinned potato variety.

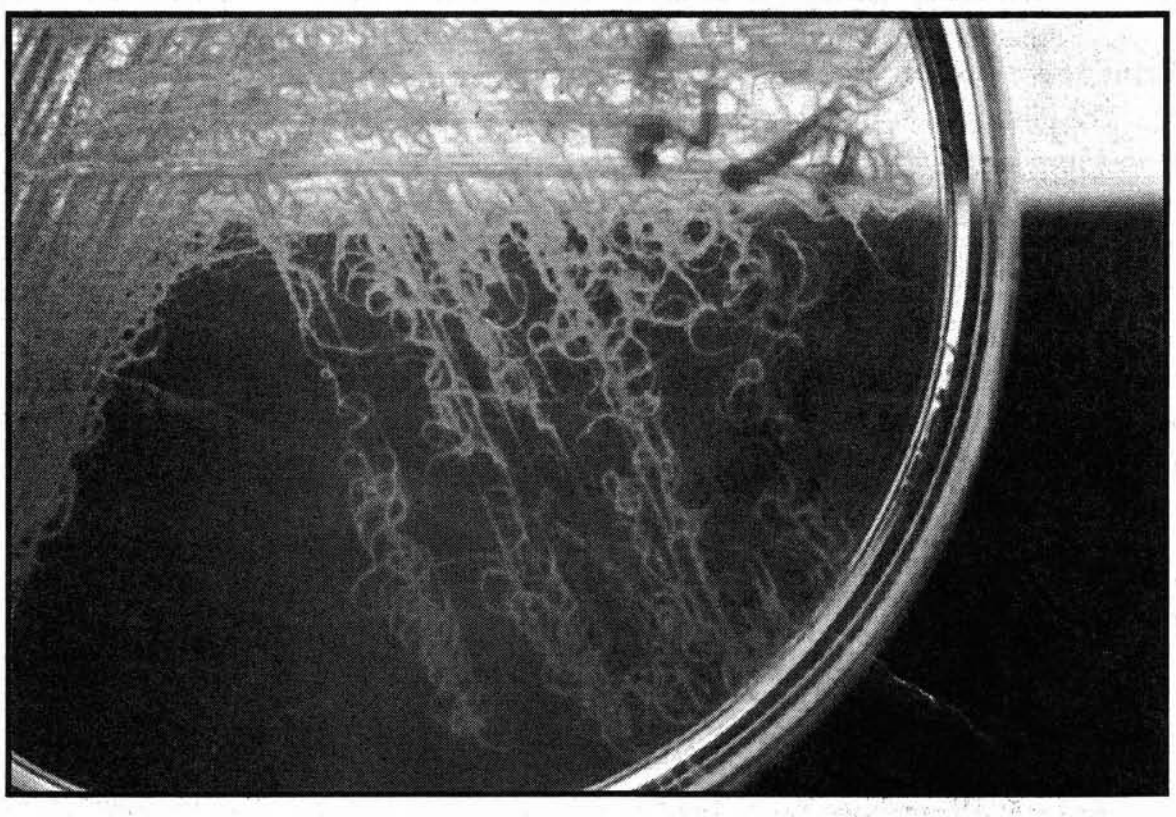

Fig. 9. Culture of *Streptomyces scabies* growing on potato dextrose agar.

→ NEMATOLOGY HIGHLIGHTS ←

NEW STATE RECORD

AN AWL NEMATODE, *Dolichodorus aquaticus,* -(Q)- An awl nematode was identified for the first time in California from an aquatic plant nursery in **San Diego** County. It was from a *Thala* sp. growing in a pond in Chula Vista. The complete identification is the result of a special study by John Chitambar in cooperation with Pat Nolan of the Agricultural Commissioner's Office. On March 24, 1994, only a partial identification of a *Dolichodorus* sp. similar to *D. heterocephalus,* an "A" rated pest, was possible from larval specimens recovered from a sample submitted to the county office by the owner.

EXCLUSION

AN AWL NEMATODE, *Dolichodorus* sp., -(Q)- An awl nematode was identified from a Florida shipment of *Ficus benjamina* plants for a Cardiff nursery in San Diego County. Pat Nolan of the Agricultural Commissioner's Office made both the initial identifications.

A BURROWING NEMATODE, *Radopholus similis,* -(A)- A burrowing nematode was identified from a Fallbrook nursery in San Diego County. The infestation includes 350 *Philodendron* plants.

A BURROWING NEMATODE, *Radopholus* sp., -(Q)- This nematode was identified from a Florida shipment of eight maranta plants for a Carlsbad nursery in San Diego County. The initial identification was made by Pat Nolan.

A DAGGER NEMATODE, *Xiphinema* sp., -(Q)- A dagger nematode was identified from one of six samples of *Bucida buceras* plants from Florida at a Salinas shipping mall in Monterey County.